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THE TREATMENT OF SEPTICEMIA AND LOCAL INFECTIONS

BY INTRAVENOUS INJECTIONS OF MERCUROCHROME-220 SOLUBLE AND OF GENTIAN VIOLET *

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In our first paper on mercurochrome-220 soluble,[1] experiments were cited to show that it could be introduced intravenously in doses of 5 mg. per kilogram of body weight in rabbits and 10 mg. per kilogram in dogs, with impunity. In this paper we detailed a prolonged search which we had made with many old and new combinations of mercury and of dyes to find a germicide which would not coagulate albumin and was nontoxic. We showed that mercurochrome answered these requirements and could be used in wounds in a 1 per cent. solution. Our toxicity experiments were confirmed by Piper [2] on both animals and human subjects. His clinical results have been most striking. Later it was shown in our laboratories, by Hill and Colston [3] that, after the intravenous administration of 1, 2.5, 5 and 10 mg. per kilogram of mercurochrome to normal rabbits, the urine became either bactericidal or strongly bacteriostatic for *B. coli*. This inhibitive action was strongest during the first five hours after injection. It was also shown that the increase in inhibitive action was not in direct proportion to increase in dosage, which can probably be explained by the fact that, with smaller doses, in rabbits from 1 through 5 mg. per kilogram, most of the drug is eliminated through the kidneys, whereas with higher doses there is diarrhea and intestinal elimination. The same authors [4] have shown that, after the intravenous administration of mercurochrome to normal rabbits, the blood is strongly bacteriostatic for *B. coli* from fifteen through forty-five minutes after injection. In short, the direct action of mercurochrome is rapid: in the circulation, strongest the first hour, as is to be expected; in the urine, strongest the first five hours. Any indirect action of the drug can be measured with difficulty, if at all, but it seems probable from the clinical cases cited here that such indirect action may exist. Before carrying out these later laboratory experiments we had decided to use mercurochrome intravenously.

* From the Brady Urological Institute, Johns Hopkins Hospital.

* Read before the Southern Surgical Association, Dec. 11, 1923, and previously, in brief, before the Eighth District Branch of the New York State Medical Society, Oct. 4, 1923, and before the Southern Medical Association, Nov. 13, 1923.

1. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: "Mercurochrome-220," J. A. M. A. **73**: 1483 (Nov. 15) 1919.

2. Piper, E. B.: The Treatment of Puerperal Sepsis by the Use of Mercurochrome, with a Report of Animal Experimentation of the Chemical Disinfection of the Blood, Am. J. Obst. & Gynec. **4**: 532 (July) 1922.

3. Hill, J. H., and Colston, J. A. C.: A Note on the Bacteriostatic Action of Urine After the Intravenous Administration of Mercurochrome to Normal Rabbits, Johns Hopkins Hosp. Bull. **34**: 220 (July) 1923.

4. Hill, J. H., and Colston, J. A. C.: A Note on the Effect of the Intravenous Administration of Mercurochromes on the Bacteriostatic Action of Blood, Johns Hopkins Hosp. Bull. **34**: 372 (Nov.) 1923.

REPORT OF CASES IN WHICH MERCUROCHROME WAS GIVEN INTRAVENOUSLY

CASE 1.—*General septicemia due to colon bacillus; patient almost moribund; condition cleared up by intravenous injection of 34 c.c. of 1 per cent. mercurochrome.*

H. A. D., a man, admitted, Dec. 30, 1922, complained of pain in the kidney. The present illness was of three weeks' duration, following grip. For two days the pain had been very severe, and, on examination, the kidneys were very tender. Urinalysis showed considerable pus, a moderate number of gram-negative bacilli, and a heavy growth of *B. coli-communior* on culture. Ureteral catheterization showed pus cells in a small amount from both kidneys, but no bacteria. On the following day the pain in the right kidney became aggravated, and the patient was admitted to the Johns Hopkins Hospital, Jan. 2, 1923, with a temperature of 103.4 F., pulse 124, and in a very toxic condition. Examination of the abdomen showed muscle spasm and tenderness in the region of the right kidney, and the diagnosis of right pyelitis was made. On the following day the patient's condition had become much worse; the temperature was still high, and the pulse very weak. The patient was irrational; there were purpuric eruptions on the neck, chest, abdomen and legs. Blood cultures showed a heavy growth of colon bacilli. The patient was seen, in consultation with the medical department; the diagnosis of general septicemia was confirmed, and the prognosis was apparently hopeless.

At this point, in conjunction with Dr. J. A. C. Colston, it was decided to inject mercurochrome intravenously in a dosage of 5 mg. per kilogram of body weight. The patient received 34 c.c. of 1 per cent. solution in the vein of the arm. The temperature rose to 104 F. at midnight, but in six hours had dropped to 97. The patient became rational in a few hours, and on the following morning his condition was marvelously transformed; the temperature was normal, and he said he felt quite well. A culture taken from the blood was sterile, and after that the patient continued to improve in strength. Subsequent cultures, January 5 and 8, also showed no growth. The patient was discharged from the hospital well on the 10th. When seen in October, 1923, his condition was excellent; the urine was sterile by culture.

This is the first case to be recorded of cure of colon bacillus septicemia by the intravenous injection of mercurochrome. The rapidity of restoration from imminent death to normal health was almost unbelievable.

The second case is one in which, at our suggestion, a similar treatment was given by Dr. Grantham, to whom we are indebted for the notes on the case.

CASE 2.—*Staphylococcus septicemia, and extensive subcutaneous abscesses following severe injury. Intravenous administration of mercurochrome; sterilization of blood and cure of local infection.*

A man, aged about 30, in previous good health, was injured in the region of the right shoulder by a circular saw. The

wound extended through the skin, muscles and the capsule of the joint, which was opened, and infection ensued. Following this he had an extensive cellulitis of the shoulder region, which extended to the chest, beneath the pectoral muscles, and also down the arm and beneath the tissues of the back. Dr. Grantham saw him about two weeks after the accident, at which time his condition was very bad. The temperature was 104, and he was delirious. The infection of the chest, back, shoulder and arm was very extensive. A slide smear showed a staphylococcus infection of the wound. Blood cultures showed staphylococci in large quantities. The patient weighed about 130 pounds (59 kg.), and he was given, intravenously, one injection of 10 c.c. of a 1 per cent. solution of mercurochrome (a dose of only 1.7 mg. per kilogram). Following this he had a chill; the temperature, which was previously 104 F., went up to over 105, but in three hours fell to 102, and on the next day was 100, when he received another 10 c.c. of 1 per cent. solution intravenously. On the following day the temperature was normal. Two days later, the patient received a third dose (10 c.c. of a 1 per cent. solution), and on the following day blood cultures were taken which proved to be negative, and the patient had an uninterrupted recovery. The cellulitis disappeared; the wounds healed completely, and the patient was discharged well.

The next case is not one of septicemia, but is equally interesting, in that an intravenous injection of mercurochrome resulted in the rapid disappearance of an extensive retroperitoneal infection (perinephric abscess) without operation.

CASE 3.—*Retroperitoneal abscess following bladder instrumentation. Colon bacillus infection. Intravenous injection of mercurochrome. Rapid disappearance of abscess.*

J. H. D., a youth, aged 17, admitted, June 21, 1923, had a hypospadias, for which a plastic operation was done to close the defect. The convalescence was uneventful until July 14, the twenty-third day, when, following the passage of sounds, the patient had a chill and fever which reached 101.5 F., as shown in Chart 1. On the following day, the patient was very ill, and the temperature reached 104. He complained of pain in the left side, extending up the small of his back, and on examination there was muscle spasm and tenderness on pressure. A diagnosis of retroperitoneal infection following instrumental laceration of the urethra or bladder was made. On the next day the muscle spasm and mass had increased, and a definite diagnosis of retroperitoneal abscess was made. The patient's temperature at 8 o'clock was 103.5. Examination of the urine showed an infection of colon bacilli. Ordinarily the patient would have been taken to the operating room for immediate incision and drainage of the abscess, but we decided to try an intravenous injection of mercurochome, and 27 c.c. of a 1 per cent. solution, 5.4 mg. per kilogram, was given at 11 a. m. At noon, the temperature was 106, and the patient had a severe chill, but by midnight it had dropped to 99.6, and after that remained practically normal. On the following day the patient was free from pain, the muscle spasm had largely disappeared, and he went on to a rapid recovery without operation. Dec. 15, 1923 (final report), the patient was quite well.

The next case is somewhat similar:

CASE 4.—*Carcinoma of the bladder involving left ureter. Extensive excision with cautery. Two months later pyonephrosis on the left side, which disappeared after intravenous treatment.*

R. M., a man, aged 63, was admitted, June 28, 1923, the cystoscopic diagnosis being carcinoma of the bladder involving the right ureter. July 9, a suprapubic excision was made, and extensive tumors were destroyed with the electric cautery. Radium was implanted and a small prostatic bar was destroyed. The tumor surrounded the left ureter, but, owing to the extent of the involvement, transplantation of the ureter was not undertaken. The patient did well until September 5, when he began to have intermittent fever with chills, and rapidly declined in strength. At the same time he developed a mass, tenderness, and slight muscle spasm in the region of the left kidney. He continued to have pyrexia and rapidly grew worse, until it seemed evident that a fatal ending would soon ensue.

Microscopic examination of the urine showed bacilli, streptococci and staphylococci. On the presumption that the patient had a left pyonephrosis, and as he seemed too ill for operation on the kidney, it was decided to treat him with intravenous antiseptics. September 23, he was given mercurochome, 5 mg. per kilogram (28 c.c. of a 1 per cent. solution). Within two hours, the strength in the urine was 1:5,000, and during the third and fourth hours, 1:4,000. As late as the eighth hour, it was in a strength of 1:8,000 in the urine, which strength is of very distinct germicidal value. This injection had a most pronounced effect on the bacilli in

TABLE 1.—*Strength in Which Mercurochrome Appeared in Stools, Urine and Vomitus in Case 3 After Intravenous Injection.*

	Stools			Urine			Vomitus			
Hour After Injection	Number	Character	Concentration of Mercurochrome	Amount, C.c.	Concentration of Mercurochrome	Microscopic	Number	Character	Concentration of Mercurochrome	Comment
First	0	.....	.....	80	1:50,000	Smears negative; culture positive	1	Brown, with food particles	0	Became nauseated, 20 min. after injection
Second	1	Brown, soft	0	45	1:25,000	No organisms; few pus cells	2	Yellow	1:100,000	Sweating profusely; severe chill; temp., 108
Third	0	.....	.....	8	1:10,000	No casts	2	Fluid, yellow	1:100,000	Chill ended; temp., 103; pulse good; abdominal pain
Fourth	1	Fluid, yellow	1:10,000	10	1:10,000	.....	0	.....	.....	Much more comfortable; sleeping; temp., 104
Fifth	0	.....	.....	40	1:10,000	No organisms; no casts	0	.....	.....	Temp., 105; complains of abdominal pain
Sixth	1	Fluid, yellow	1:25,000	...	.....	.....	0	.....	.....	Temp., 104; quite uncomfortable
Seventh	0	.....	.....	200	1:50,000	.....	0	.....	.....	Taking fluids well; temp., 103; better
Eighth	1	Fluid, yellow	1:50,000	125	1:75,000	.....	0	.....	.....	Temp., 100.6; much better
Ninth to twelfth	0	.....	.....	760	1:75,000	Cultures positive	0	.....	.....	Complains of abdominal pain; temp., normal
Thirteenth to eighteenth	4	Fluid, yellow tinge	1:100,000	720	1:100,000	No casts; albumin negative; smears negative	0	.....	.....	Abdominal pain much less severe; muscle spasm disappearing
Eighteenth to twenty-fourth	2	Mucous, yellow tinge	1:100,000	400	1:100,000	No casts; smears negative for organism	0	.....	.....	Temperature has remained 100 or below; much better
Second day	1	Soft	0	1,000	Trace	Smears negative; culture negative	0	.....	.....	Temp., 99; condition improving rapidly
Third day	2	Soft	0	1,300	Trace	Smears negative; culture negative	0	.....	.....	Temp., 98; patient feels almost normal; pain, tenderness and muscle spasm gone
Fourth day	1	Soft	0	820	0	Smears negative; culture negative	0	.....	.....	Temperature has remained normal; patient feels well; up in chair

the urine. Within three hours, they had completely disappeared from the urine, and were no longer found during four days in which examinations were made. The gram-positive cocci were not reduced greatly in number, but the patient improved greatly, and his temperature fell to normal, and remained so for about two weeks. As the urine still contained large numbers of staphylococci and streptococci, he was then given 600 mg. of neo-arsphenamin intravenously, with very slight reaction. As a result of this injection, the staphylococci and streptococci present were both reduced slightly; but, as the patient soon began to have a temperature of from 99.5 to 100

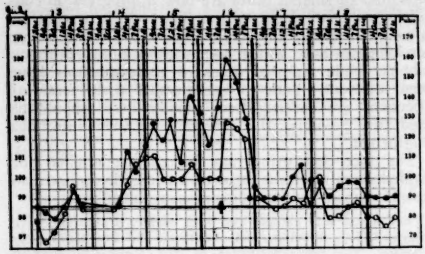

Chart 1.—Temperature (solid dots) and pulse (outline dots) in Case 3. Arrow indicates injection of mercurochrome.

daily, he was given 28 c.c. of a 1 per cent. solution of gentian violet (5 mg. per kilogram), October 11. This was followed by no reaction, and, within an hour, the gentian violet appeared in a strength of 1: 100,000 in the urine, and remained at that strength until the fourth hour. The staphylococci did not disappear completely. The patient, however, was much better after the treatment, the fever disappeared, and from that time on he continued to improve steadily. The pain and tenderness in the region of the kidney disappeared, and he gradually regained his strength and weight, so that within two weeks he was able to be up in a chair. His condition was completely transformed, and, I believe, his life was saved. Dec. 25, 1923 (final report), the patient wrote that he was well and at work.

The following cases are cited to show the sterilizing effect of intravenous mercurochrome on local processes:

CASE 5.—*Bilateral chronic pyelitis due to* Bacillus lactis-aerogenes. *Treated by intravenous injection of mercurochrome with complete cure.*

A woman, admitted, Jan. 2, 1923, complained of pain in the left side of six months' duration, and of frequency of urination. The cystoscope showed the bladder to be normal. Ureteral catheterization showed pus and bacilli from the right kidney. A thorium pyelogram was taken of the left kidney and was negative. During the following week the patient was treated by pelvic lavage three times. Cultures were obtained from the right kidney, and were found to be *Bacillus lactis-aerogenes.* Cultures from the left kidney were at first sterile, but later showed bacilli. As the pelvic lavage was unsuccessful in clearing up the renal infection (both 1 per cent. sodium dihydroxymercuri-dihydroxibenzophenone sulphonate (meroxyl) and 1 per cent. silver nitrate had been used), January 12, she was given an intravenous injection of 1 per cent. mercurochrome (5 mg. per kilogram). Marked nausea appeared thirty minutes after injection, and half an hour later there was vomiting and a large stool. In six hours the nausea had subsided and the patient was more comfortable. The temperature remained normal. On the following day the urine was found to contain numerous bacilli (probably dead), but the cultures were sterile. Casts were present for a few days, but on discharge from the hospital, January 26, the urine was sterile. There was only a trace of albumin, and only an occasional cast, and the pain and discomfort had completely disappeared. Subsequent cultural examination showed the urine to be sterile.

The next case is similar.

CASE 6.—*Chronic cystitis following prostatectomy. Colon bacillus and* Staphylococcus albus *infection sterilized by intravenous injection of mercurochrome.*

J. M. B., a man, aged 60, was readmitted, Oct. 13, 1923, complaining of frequency of urination. He had been subjected to a perineal prostatectomy one year previously, and a good result was obtained, with the exception of a vesical infection. Examination was negative except for cloudy urine with pus and bacilli present in large numbers. The patient was treated by intravesical irrigations with benefit, but the urine was still heavily infected with colon bacilli and a small number of cocci. October 12, he was given 20 c.c. of 1 per cent. solution of mercurochrome intravenously (about 3 mg. per kilogram). He had no reaction; no rise in temperature, no vomitus, and no stools. Within one hour the urine showed colorimetrically a content of 1: 20,000 mercurochrome. After the second hour, cultures and slide smears were negative, and remained negative for bacteria until the patient was discharged from the hospital, two days later. Cultures obtained ten days later showed that the urine was still sterile.

CASE 7.—*Pyelitis due to colon bacillus. A child, very septic, apparently saved by mercurochrome intravenously.*

M. L., a girl, aged 4 years, weighing 26 pounds (11 kg.), was admitted to the Harriet Lane Home, Nov. 2, 1923, complaining of pain in the right side, of two days' duration. The patient was very sick; the temperature was 102.5, and the abdomen was rigid, with marked tenderness over both kidney regions. The urine was cloudy and contained pus and *B. coli* in large numbers. Leukocytosis was 19,950. A phenolsulphonephthalein test yielded 55 per cent. in two hours. Blood culture was negative. Cultures from the urine showed *B. coli.* During the first two days the temperature reached 105, and on the third day the patient was very ill, and it was decided to administer an intravenous injection of mercurochome. Accordingly, 100 mg. was given (8 mg. per kilogram). Following the injection, the temperature fell to 98. The next day the patient was much better, but continued to have a fever, and during the next five days received four intravenous injections of mercurochrome, 30 mg. each (2.5 mg. per kilogram). Under this treatment the temperature finally reached normal on the eighth day (Chart 2). She then developed a furuncle. The temperature rose to 102.5. Bacteria were still present in the urine.

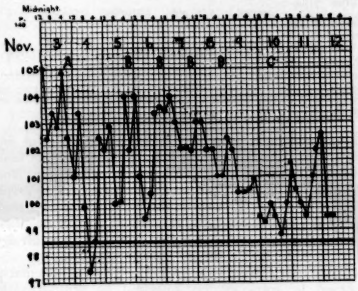

Chart 2.—Temperature in Case 7: *A*, 100 mg. of mercurochrome (8 mg. per kilogram); *B*, 30 mg. of mercurochrome (2.5 mg. per kilogram); *C*, furunculosis developed.

In addition to these seven cases, mercurochrome has been used intravenously in several cases of pyelitis and also other local infections. In some of the cases of pyelitis the urine was promptly sterilized. In others there was improvement, but bacteria still persisted in the urine. This was true also of a case of chronic prostatitis and cystitis with colon bacillus infection in which, after the injection of 6.8 mg. per kilogram, the organisms still persisted. In other cases, however, the sterilization of the urine was very prompt and perma-

nent after a single injection of mercurochrome in doses varying from 3 to 5 mg. per kilogram.

It is evident, therefore, that the drug is not efficacious in all cases, and it is probable that colon bacilli differ from one another in their resistance to mercurochrome just as they differ markedly in other respects. At the same time, these and other laboratory and clinical experiments show conclusively that often the intravenous use of mercurochrome may have a very prompt and effective sterilizing action.

USE OF GENTIAN VIOLET

In a recent article, Churchman,[5] who in 1910, at this clinic, began his studies on gentian violet, which he has shown to be a remarkable germicide for gram-positive staphylococci, writes:

> Tri-phenyl-methane dyes may be injected into the circulation of rabbits in pretty large doses without harm to the animals, and the blood of the injected animal possesses the selective bacteriostatic property of the dye itself. But only for a short time. At the end of one and three-fourths hours it has entirely disappeared. This power which the blood possesses cannot be interpreted as an activation of the serum, but is due solely to the presence in the blood of the unchanged dye. When the dye is changed, as it is, in a relatively short time, the power disappears. It seems probable, since all dyes are rather unstable, that a similar change takes place in other dyes. I have never been able to kill organisms circulating in the blood by intravascular injection of gentian violet. There is some evidence in the literature that it may at some time prove possible to produce a sterilisans magna in this way; but certainly at the present time there is nothing to suggest that it is now possible to do for bacteria what quinin does for malaria.

TABLE 2.—*Antiseptic Action of Urine After One Intravenous Dose of Gentian Violet, 10 Mg. per Kilogram* *

	Staphylococcus Aureus per Cubic Centimeter				
	One Minute After Inoculation	One Hour After Inoculation	Two Hours After Inoculation	Twenty-Four Hours After Inoculation	Uninoculated Control
Urine obtained by catheterization 1 hour after injection	3,300,000	1,160,000	430,000	0	0
Urine obtained by catheterization 3 hours after injection	1,040,000	630,000	410,000	0	0
Urine obtained by catheterization 5 hours after injection	2,700,000	770,000	.....	1,300,000	0
	B. coli				
Urine obtained by catheterization 5 minutes before injection (control)	1,600,000	11,000,000	11,000,000	83,000,000	0
Urine obtained by catheterization 1 hour after injection	5,600,000	5,500,000	3,810,000	7,700,000	0
Urine obtained by catheterization 3 hours after injection	1,500,000	1,800,000	3,600,000	.....	0

* Specimens obtained by catheterization, before injection and one, three and five hours after injection, and inoculated with Staphylococcus aureus or B. coli.

We have studied the toxicity of gentian violet by intravenous administration of the drug to normal rabbits.[6] An injection of 20 mg. per kilogram killed in five hours. However, single doses of 5 mg. per kilogram (three rabbits), 7.5 mg. (two rabbits) and 10 mg. (four rabbits) have been well tolerated in every case. Repeated injections, given three times a week, have shown that of three rabbits given 5 mg. per kilogram, two died after the seventh injection, one tolerating seven injections well. Two rabbits died after four doses of 7.5 mg. per kilogram. Of four rabbits given 10 mg. per kilogram, one died after the fifth dose, one after the fourth, and two after the second, an average of about three doses. Further experiments with repeated injections of smaller doses are now in progress, in connection with pathologic studies. The series here reported, however, indicates that single doses of 5, 7.5 and 10 mg. per kilogram have so far been without toxic effects on rabbits, while repeated doses of these amounts have been sufficiently toxic to indicate that when series of injections are contemplated, smaller doses should be used, or, possibly, the intervals between injections lengthened.

The fact that urine may become bactericidal for staphylococci after the intravenous injection of gentian violet is shown by the following experiment:

> The animal was catheterized with aseptic precautions, five minutes before injection, and one, three and five hours after injection. Two cubic centimeters of each specimen so obtained was placed in a sterile test tube and inoculated with one standard loopful of the test organisms. One minute after inoculation, 0.1 c.c. of this urine-organism mixture was removed, diluted and plated to determine the number of bacteria present. Similar tests were made by dilution and plating one, two and twenty-four hours after inoculation. In this way it was possible to estimate the increase or decrease in the number of bacteria, and so to determine the antiseptic or germicidal action of the urine. The marked increase in the number of bacteria in the urine taken before drug administration indicates that the urine was not normally antiseptic. The findings are expressed in terms of number of bacteria per cubic centimeter in Table 2.
>
> The urine after administration of gentian violet intravenously became markedly antiseptic for *Staphylococcus aureus* and moderately so for *B. coli.* The drug showed bacteriostatic actions on *B. coli,* but was not bactericidal. In the specimens taken one and three hours after injection, the urine was bactericidal for *Staphylococcus aureus,* killing all the organisms during a twenty-four-hour exposure period.

Gentian violet was first employed as an intravenous germicide, July 12, 1923:

> CASE 8.—*Ureteral calculus;* Staphylococcus aureus *urinary infection; intravenous injection of gentian violet; sterilization.*
>
> J. D. G., a man, aged 47, first came to Brady Institute, June 29, 1923, complaining of attacks of pain in the left side. One year before he had an attack of pain in the left flank, associated with slight frequency of urination, and similar attacks at irregular intervals subsequently. At times the pain radiated into the testis. Examination of the urine after these attacks showed red blood cells. The attacks became more frequent and severe during the last few months.
>
> Physical examination showed tenderness over the region of the left ureter. The urine was uninfected, but contained a trace of albumin. There were no red blood corpuscles. Roentgen-ray examination showed a shadow in the lower left ureter.
>
> On cystoscopic examination, the bladder was normal. A wax-tip catheter met an obstruction 1 inch from the left ureteral orifice, and showed a scratch on withdrawal. Procain and oil were injected through the catheter.
>
> The patient remained in the ward sixteen days, during which time he received two other injections of oil and procain without any change in the position of the stone. Six days following the first instrumentation, gram-positive cocci were found in the urine (*Staphylococcus aureus*). July 12, he received 50 c.c. of 1 per cent. gentian violet (7 mg. per kilogram of body weight). Except for a slight uneasiness in the abdomen, the

5. Churchman, J. W.: The Selective Bacteriostatic Action of Gentian Violet and Other Dyes, J. Urol., January, 1924.
6. Coleman and Bell's gentian violet improved has been used throughout, experimentally and clinically.

patient had no reaction. Pulse, temperature and respiration remained normal. There was no nausea, vomiting or diarrhea. There was, however, quite a remarkable change in the color of the skin. It immediately became quite blue, giving the appearance of extreme cyanosis. This gradually subsided so that six hours later he appeared quite normal. He stated that all objects appeared purple immediately following the injection. Urine voided one hour after the injection had a quite marked violet tinge. Colorimetric tests showed gentian violet present in this specimen in a dilution of 1: 50,000. The second hourly specimen contained the drug in a dilution of 1: 100,000. There was a faint trace in all specimens for twenty-four hours. Cultures taken from each specimen contained cocci. A smear of a centrifugalized fresh specimen forty-eight hours after injection showed no organisms. Cultures taken at this time, however, showed an occasional coccus.

Three days following the gentian violet treatment, ureterotomy was performed and two small spiculated calculi were removed from the lower ureter. Cultures, September 24, showed no growth, indicating a complete clearing up of the infection.

The second case in which gentian violet was employed intravenously was a case of staphylococcus septicemia in the Harriet Lane Home, service of Dr. Howland. The report is furnished by Dr. Casparis, who gave the injections.

CASE 9.—*Infant with staphylococcus septicemia and multiple abscesses; gentian violet intravenously; sterilization of blood and cure of abscesses.*

Gentian violet was injected intravenously into an infant, aged 15 months, suffering from staphylococcus septicemia. This patient had been admitted to the wards three weeks previously suffering from severe bacillary dysentery and otitis media, and had later developed multiple large staphylococcus abscesses and staphylococcus septicemia. His condition had gradually grown worse; his temperature, which had ranged from 101 to 103, had finally reached 106, and he apparently was moribund. *Staphylococcus aureus* had been demonstrated in two cultures made during the three days preceding the first injection (Aug. 29, 1923). There were about 10 colonies per cubic centimeter of blood. Three injections of a 0.25 per cent. aqueous solution of gentian violet were given at twenty-four hour intervals. The first dose was 5 mg. per kilogram of body weight. The calculated resulting concentration of the dye in the body fluid was 1: 140,000, on the assumptoin that the fluid content of the body is 70 per cent. of the body weight.

The white blood cell count, which was 22,000 at the time of injection, was reduced to 10,000 twelve hours later, but returned almost to the original count during the next twelve hours. Because of the possibility that the reduction in the white blood cell count was due to the effect of the dye in that concentration, the amount was reduced, and the second and third doses consisted of 4 mg. per kilogram of body weight. Blood cultures made immediately preceding the second and third injections were sterile. After the third injection the patient's appearance had improved, his fever was reduced, and the white blood count had decreased. We therefore discontinued the administration of gentian violet.

The child, whose condition was desperate at the time the injection of gentian violet was begun, gradually improved. He gained weight, the abscesses healed, and he was discharged from the hospital two months later, entirely well.

Another very severe case in which the patient was saved by gentian violet injections is from the surgical department, service of Dr. Finney, the report of which has been furnished by Dr. Rienhoff, resident surgeon.

CASE 10.—*Staphylococcus septicemia with multiple osteomyelitis. A boy, almost moribund. Gentian violet, 5 mg. per kilogram, intravenously. Blood sterilized.*

R. M., a boy, aged 6 years, admitted, Sept. 18, 1923, had multiple osteomyelitis and general septicemia. The temperature on admission was 102, and during the next five days it varied between 101 and 106. During this time the child became progressively worse and practically moribund, with a temperature of 106. Acute osteomyelitis of the tibia, fibula, radius, ulna and humerus was present, and blood cultures showed *Staphylococcus aureus.* Multiple incisions were made for the osteomyelitis, and the cultures showed here also *Staphylococcus aureus* infection. At 8 p. m., September 23, the patient's temperature was 106.3, and, as a last resort, he was given gentian violet intravenously, 5 mg. per kilogram. The temperature began to fall at once, and reached 101 the next morning. The patient became conscious and improved steadily. Blood cultures taken two and three days later showed that blood was sterile. The patient continued to improve clinically, and, at the end of twenty-four hours, the temperature was 99, and he was apparently cured of the septicemia. On the forty-fourth day the left knee joint became inflamed, with a recurrence of the septicemia, and he was given another intravenous injection of gentian violet, 5 mg. per kilogram, November 15. Cultures from the blood three days later were sterile, but the fever persisted. The patient was given another intravenous injection of gentian violet, 5 mg. per kilogram, several days later. The osteomyelitic processes have not been completely cured, the urine is now infected and the patient has fever, but cultures from the blood show that it is still sterile (November 27), and the condition of the patient is steadily improving. Feb. 18, 1924 (final note), the sequestrum had been removed, and the boy was nearly ready to leave the hospital.

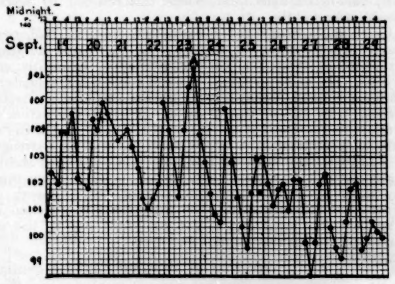

Chart 3.—Temperature in Case 10: *A*, gentian violet, 5 mg. per kilogram.

This is an interesting case as showing how general septicemia may come on from localized processes after being completely sterilized by an intravenous treatment of gentian violet. It would seem to indicate that, in addition to intravenous therapy, attention to the local processes is indicated in order completely to clear up chronic foci of infection. It is possible that multiple repeated intravenous injections would be advisable in such cases, but they would have to be given with care, as we do not as yet know the limit of safety for repeated injections.

CASE 11.—*Diabetes mellitus; staphylococcus septicemia; intravenous injection of gentian violet.*

F. S., a woman, aged 42, whose weight was 150 pounds (68 kg.), admitted, Aug. 25, 1923, complained of excessive hunger and thirst, and an abscess of the left palm. She had been sick for many years with various diseases. Six years before, she developed diabetes mellitus, and this was followed by multiple abscesses. Three days before admission, the patient developed an abscess on the palm of the left hand, which was draining on admission. Physical examination showed obesity, vascular changes in the retina with blurring of disks, pyorrhea, emphysema of the lungs, an enlarged heart with a systolic murmur, hypertension and arteriosclerosis. The knee kick and ankle jerk were absent; an abscess in the left hand and in each axilla were all draining pus. The Wassermann test was positive. The urine at this

time was negative for sugar. The patient was placed on insulin treatment, and did well until October 27, when she had a chill, followed by a rise in temperature to 105. Blood cultures were immediately taken, and showed a pure culture of *Staphylococcus aureus*, 40 colonies per cubic centimeter of blood. On the following day the cultures showed 140 colonies per cubic centimeter. The patient was desperately sick, the temperature varying from 102 to 104. October 29, she was given an intravenous injection of gentian violet, 5 mg. per kilogram. The culture taken before injection showed a great drop in the number of organisms. On the following day only one colony of *Staphylococcus aureus* was found per cubic centimeter of blood, and on November 4, blood cultures were sterile. By referring to Chart 4, it will be seen that the temperature by this time had reached normal. The patient was discharged, November 18, in excellent condition.

Because the blood culture taken before injection showed a great fall in the bacterial count, it is impossible to demonstrate clearly the action of gentian violet in this case, but it is probable that it at least aided the sterilization of the blood and the rapid recovery of the patient without spread of the infection.

Case 12 shows a selective action of gentian violet against the staphylococcus.

CASE 12.—*Chronic cystitis, posterior urethritis, and prostatitis, due to staphylococcus, which was removed by gentian violet intravenously.*

U. H. H., a man, aged 53, admitted, Nov. 10, 1923, complained of frequency of urination of one year's duration. Examination showed a chronic prostatitis, vesiculitis and cystitis. The urine contained pus and cocci in large numbers. Cultures showed *Staphylococcus aureus* and also a streptococcus. The patient was given an intravenous injection of gentian violet, 40 c.c. of a 1 per cent. solution. At the end of an hour, gentian violet was present in the urine in a strength of 1:200,000, and cultures from the urine remained sterile, beginning with the second hour. A culture taken on the third day again showed staphylococci absent, but a growth of streptococci still persisted. The patient had no reaction as a result of the injection; he did not vomit, and he had no diarrhea. He left the hospital improved.

This case is interesting as showing that the gentian violet is much more effective against staphylococci than streptococci, thus confirming laboratory experiments, which show that gentian violet in vitro prevents the growth of staphylococci in broth in a dilution of 1:1,000,000 or more, and streptococci in a dilution of 1:200,000.

SUMMARY

The cases comprise seven which were treated by mercurochrome, and five by gentian violet. The mercurochrome cases include two cases of septicemia—both desperate cases in which cure was effected and the blood sterilized by intravenous injection of mercurochrome. The results were almost miraculous, the patient being verily snatched from the jaws of death (Cases 1 and 2).

In Case 3, an ascending retroperitoneal infection, the disappearance of the inflammatory mass was just as startling.

In Cases 4 and 7, pyonephritis, the patients' lives were undoubtedly saved, and in Cases 5 and 6, pronounced *B. coli* urinary infections of the kidney and bladder disappeared almost immediately after a single injection of mercurochrome.

These cases are sufficiently varied to show a wide field of usefulness for mercurochrome-220 soluble as an intravenous germicide; but just what the limitations of its use may be will have to be determined by a much more extensive series of trials. In most of these cases, the organism has been one of the colon group, but one of those reported here was a staphylococcus septicemia with extensive infectious processes in the chest, back and arm. Other cases, in which the drug was administered by others, and of which we have not complete notes, show that mercurochrome may be efficacious in streptococcus septicemias as well as in those due to the staphylococcus and colon bacillus. Feb. 18, 1924, since first presenting these cases in October, 1923, several septicemias have been treated, two *S. hemolyticus* and two *S. viridans*, without success. On the other hand, three cases of staphylococcus septicemia have been cured by gentian violet injections (reports from Dr. George Heuer, Cincinnati, Dr. F. M. Hanes, Winston-Salem, N. C., and Dr. John T. Geraghty). Dr. E. B. Piper, Philadelphia, writes that he has cured three staphylococcus and several streptococcus septicemias with mercurochrome.

In one case, a child, a dose of 8 mg. per kilogram of body weight was used once, and in one adult we injected 6.8 mg. per kilogram; but the patient had very severe nausea, vomiting and diarrhea, with a transitory albuminuria. Other patients who received 5 mg. per kilogram had pronounced gastro-intestinal symptoms, but all were transitory and after a few days the patients were normal. In urinary infections, the smaller dose may be justified and perhaps just as efficacious; but the desperate nature of septicemia demands drastic treatment, and 5 mg. per kilogram should be employed. That the drug is not always successful in sterilizing the urine has been pointed out.

The five cases treated by gentian violet comprise just as desperate cases as some of those treated by mercurochrome, and gave just as brilliant results. In all of these cases the infecting agent was a staphylococcus, and in our experience gentian violet has had an apparently selective action against gram-positive staphylococci. Cases in which it did not affect the streptococcus or the colon bacillus are cited, but our series of cases is still much too small to lay down positive dicta as to the selective action of these drugs for the various pathogenic bacteria of local and general infections. In the case of gentian violet, the intravenous injection of 5 mg. per kilogram is immediately followed by a most alarming cyanosis, which is simply due to the dye in the blood, which causes no harm and passes off in a few hours. Otherwise, practically no reaction results, and we have administered 8 mg. per kilogram of body weight in 0.5 per cent. solution without harm. The pulse may get quite slow (60) and the blood pressure drops. In very feeble patients, cardiac stimulants should be administered. In very weak patients, the injection may best be given in two or three treatments (intravenous) one hour apart, in order to give large doses.

In these cases we have the first demonstration that gentian violet may be used intravenously to combat general septicemia or local infections, and with remarkable success in the case of gram-positive staphylococci. Coupled with the equally amazing results obtained by mercurochrome, these cases represent a splendid therapeutic achievement, and one is tempted to soar into realms of fancy and see a great variety of infectious processes treated and cured intravenously; but one must be restrained and cautious. Only by most careful study and painstaking selection and management of the cases can serious blunders be avoided, and it would not be safe as yet to risk not operating on certain fulminating infections that can now be cured by prompt surgery. That certain localized infections may now be safely subjected to the experimental use of intravenous

therapy is shown by some of these cases, and there can be no doubt that when blood cultures show a generalized septicemia, mercurochrome and gentian violet can now be offered with the hope of preventing an otherwise surely fatal ending.[7]

SURVEY OF THE NARCOTIC PROBLEM *

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NEW YORK

In June, 1923, questionnaires were sent to all physicians and dentists in the state of New York. The one to the physicians asked:

Amount of morphin prescribed in 1922?
Amount of heroin prescribed in 1922?
Amount of cocain prescribed in 1922?
Number of narcotic addicts treated in 1922?
Do you believe that heroin is necessary in your practice?
Do you believe that cocain can be advantageously replaced by non-habit-forming synthetic drugs, such as procain or similar preparations?

The one to the dentists asked:

Amounts of cocain used in 1922?
Do you believe that cocain can be advantageously replaced by non-habit-forming synthetic drugs, such as procain or similar preparations?

The animating purposes in making these inquiries of physicians and dentists, as to the practical experience acquired in their professional use of habit-forming drugs, were:

1. To determine whether this is a medical issue or a police problem, or both.

2. To gain statistical knowledge as to the number of medical drug addicts treated in this state during a given period of time, from which reasonable approximations or conclusions may be drawn.

3. To ascertain the quantity of narcotics prescribed by the physicians and dentists in the state of New York. No attempt was made to ascertain the amount of narcotics consumed by the public and furnished to the market legitimately through druggists in the form of paregoric, proprietary medicine, etc., nor were hospitals taken into consideration. It was my opinion that addicts treated in hospitals had previously been under treatment in the private practice of physicians. Therefore, in order to avoid duplication, no hospital statistics were gathered.

4. To obtain general information as to the desirability and possibility of the practitioner's substituting non-habit-forming drugs, without lessened efficacy of his service to his patients.

5. To secure information as to the necessity of heroin in the practice of medicine. There was no intention to suggest any restrictions to the constitutional right of the physician to prescribe whatever he deemed necessary to his practice. In the light of the investigations here reported and which may hereafter be made, the profession itself should determine whether the physicians themselves should not unite in declaring heroin an outlawed drug.

6. To ascertain the quantity of cocain used by dentists and physicians; to determine the percentage of practitioners who, in part or wholly, employ synthetic preparations having no habit-forming qualities, and to learn, from those competent to judge, the efficacy of these substitutes.

It was my intention to find out what narcotics are necessary and the extent of their use and, in general, to show through the census the general trend.

Far from attempting to minimize the work of the practitioner, my aim has been to gather information so that the various points of view of the physicians and dentists may be available for mitigating and eradicating evils in connection with the use of habit-forming drugs.

The responses to this appeal from the medical and dental profession have been most hearty, and again furnish exhaustive evidence that the professional man is an altruist in lending his aid in the solution of great public issues. It is to be hoped that the data secured will be helpful in solving some of the vexatious problems that obtrude. The following is a review of the returns received from the questionnaire:

IS DRUG ADDICTION A MEDICAL ISSUE OR A POLICE PROBLEM?

Some medical men have been of the opinion that all that pertains to this subject should be under the jurisdiction of the medical profession; that drug addiction is a sickness or a disease, and the addict should be regarded and treated as a sick man. On the other hand, most of those administering the criminal laws, supported by the great majority of social workers, contend that, because such a large percentage of criminals have acquired the narcotic habit, the issue has become one inseparably connected with the regulation of crime.

The returns show that there is a medical narcotic addict who requires narcotics because of physical ailments. This type is obviously one to be handled by physicians, and every barrier should be removed so as not to embarrass the physician in according relief to such sufferers.

The far greater number, however, are the criminal drug addicts whose addiction in its inception and in its continuance is due to vice, vicious environment and criminal associations. The consideration of this class, the figures prove, constitutes a distinct police problem. The so-called medical addict who will not consult the physician, but purchases his narcotics from street venders and thus supports the illicit traffic in drugs, obviously places himself in the same class as the criminal addict. In about 10,000 arrests and hospital commitments for cure by the narcotic division of the police department during the last three years, it was frankly admitted by 98 per cent. and a fraction that their addiction was due to bad associations; that there was never any medical reason for their using narcotics. The remaining 2 per cent. gave various excuses for first using narcotics, principally some surgical operation or illness. At the time of their arrest there was in this minute percentage almost invariably no reason for their continuing to use narcotics, surely not for the use of heroin and cocain. They buy these on the street, knowing that no reputable physician will prescribe for them. The medical addict usually confines himself to morphin, but the menu of the criminal addict is heroin and cocain. Approximately 95 per cent. of those arrested by the police in New York City are heroin and cocain users. In other parts of the country, morphin is the chief narcotic.

Heroin addiction is, however, rapidly replacing morphin addiction throughout the United States, this spread being more noticeable from seaport cities.

7. Young, H. H.: Cure of a Retroperitoneal Abscess by Intravenous Injection of Mercurochrome, Bull. Johns Hopkins Hosp., January, 1924; Urinary Antiseptics, J. Urol. 11:19 (Jan.) 1924.

* Read before the Medical Society of the County of New York, Jan. 28, 1924.

To those addicted to the use of an opium derivative, morphin or heroin is a daily necessity. Cocain does not entail suffering, if withdrawn. Heroin is preferred because of its greater potency; and, because of its smaller bulk per weight, it is more easily smuggled.

NUMBER OF ADDICTS RECEIVING TREATMENT

It has been asserted that the arrests of the police department represent only 10 per cent. of the narcotic addicts in this state; that the greater number of addicts are being treated by the physicians as private patients. I have always taken the opposite position, and controverted the criticisms directed at the medical profession.

TABLE 1.—*Summary of Results*

Number of physicians questioned	14,715
Number of replies received	7,559
Percentage of replies	51.37
Number of addicts treated during 1922 (as reported by 7,559 physicians)	775

This census of the physicians of this state shows that the percentage of medical addicts is almost negligible.

Those who dispute the police point of view, that narcotic drug addiction is an underworld problem, maintain that there is a very large number of addicts with whom the police do not ever come in contact. They contend that the larger number and better class of addicts are treated by physicians. The replies to this questionnaire definitely settle this point (Table 1).

Further analysis of the answers received to the questionnaire gives the figures presented in Table 2.

It was my desire to make an accurate survey of the medical situation, as I felt that the physician had been stigmatized by the popular idea that he was the cause of the growth of narcotic drug addiction in this country. Some of the addicts included in the total of 775 treated by physicians were not what might strictly be called "medical" addicts; that is, their addiction was traceable in its acquirement to some ailment, or they were suffering from some disease condition that required narcotics. Furthermore, most of the cases reported were of patients under treatment for cancer or other painful disease or of very old persons. No question was asked as to the ages of addicts, but some physicians furnished additional information, as the following examples show:

TABLE 2.—*Treatment of Addicts*

		No. of Addicts
256 physicians treated	1 addict	256
69 physicians treated	2 addicts	138
30 physicians treated	3 addicts	90
14 physicians treated	4 addicts	56
4 physicians treated	5 addicts	20
3 physicians treated	6 addicts	18
2 physicians treated	7 addicts	14
2 physicians treated	8 addicts	16
3 physicians treated	10 addicts	30
2 physicians treated	12 addicts	24
1 physician treated	16 addicts	16
1 physician treated	22 addicts	22
1 physician treated	25 addicts	25
1 physician treated	50 addicts	50
389 physicians treated a grand total of		775
94.8 per cent., or 7,170 physicians did not treat any addicts		

One physician treated seven addicts, "all old people."

One physician treated eight addicts, "all over 60 years."

One physician treated eight addicts, "ages of 63 to 76."

One physician treated eleven addicts, "all over 50, most past 70, one 87."

One physician treated sixteen addicts, "all suffering from some chronic disease, one under 40, three under 50, others between 50 and 75."

The haunting specter of narcotism has been hyperbolized by propaganda, no doubt well meaning, but, nevertheless, misleading. It is my desire to clear away the mist that enshrouds this subject, and not to overestimate or belittle its import.

When we look for figures as to the number of narcotic users in the country, or in any section or spot therein, we are given the choice of a wide variety of guesses from many official sources. For New York City these estimates run as high as 250,000.

The United States Public Health Service, in a bulletin issued in 1915, gave 140,000 as its highest estimate of the number of drug addicts in this country. Four years later, 1919, the Congressional committee appointed to investigate this problem stated that the number of drug addicts in the United States exceeded 1,990,000, or 2 per cent. of the population, 4 per cent. of the adults. These are government figures. In addition, the committee viewed the situation with alarm and reported that drug addiction was increasing; that there was a nation-wide use of narcotics and that they were being used by all classes. I believe that these figures are inexact, but am convinced that the prevalence of narcotic drug addiction in the underworld is nevertheless appalling.

TABLE 3.—**Criminality and Drug Addiction**

			Previous Arrests for Various Crimes	Total
1	person's record	showed	25	25
1	person's record	showed	24	24
1	person's record	showed	23	23
1	person's record	showed	19	19
1	person's record	showed	18	18
1	person's record	showed	17	17
3	persons' records	showed	16	48
4	persons' records	showed	15	60
5	persons' records	showed	14	70
4	persons' records	showed	13	52
8	persons' records	showed	12	96
12	persons' records	showed	11	132
44	persons' records	showed	10	440
48	persons' records	showed	9	432
73	persons' records	showed	8	584
105	persons' records	showed	7	735
136	persons' records	showed	6	816
293	persons' records	showed	5	1,465
741	individuals, previously arrested			5,056 times

As an instance to show even more definitely the criminality associated with drug addiction and the extent to which it has grown in the ranks of the criminal, I have selected, from the arrest statistics of the Narcotic Division of the Police Department of the City of New York for 1923, a group of 741 persons whose records showed more than five previous convictions, which are summarized in Table 3.

On carefully checking up our statistics of arrests and commitments to hospitals of narcotic users for the years 1921, 1922, and 1923, totaling 9,637, I found that they represent 8,174 individual narcotic users. I then checked up the criminal records of these 8,174 persons, and, so far as shown by records on file in the International Identification Bureau of Narcotic Criminals, of the New York Police Department, representing 700 cities and twenty-seven nations, these 8,174 individuals had been previously arrested 32,696 times in all sections of the country for every crime on the calendar.

The 8,174 narcotic users were tabulated as: 876 opium smokers (mostly Chinese); twenty-seven hashish users (marahuanna smokers); 379 who used morphin only, and 6,892 who used heroin separately or combined with cocain. It will be noted that, eliminating the smokers of opium and hashish, 95 per cent. of the nar-

cotic addicts use heroin. Only 2 per cent. owe their addiction to medical reasons.

These figures are exact, as far as criminal records were available, and are extremely illuminating on the great problems confronting the police. They permit us also to arrive at the definite conclusion that the number of drug addicts in New York State (estimates running to half a million) has been grossly exaggerated.

We know that there are drug addicts among the wealthy, in society, on the stage, and in the professional ranks, but their number has also been greatly overestimated. Some of these have also been arrested by the police. The source of supply of the drugs in these instances is the same, the smuggler and the street vender.

QUANTITY OF NARCOTICS PRESCRIBED

As to the quantity of narcotics used and prescribed by physicians and dentists in the state of New York as an index to the legitimate demand per capita, replies to the questionnaires revealed that in 1922, 7,559, or 51.37 per cent., of the physicians of this state prescribed 1,392 ounces, or 43,296 gm., of morphin, and 30 ounces, or 933 gm., of heroin.

The basis of 1,392 ounces, or 43,296 gm., of morphin used by 7,559 physicians established an average of 5.727 gm. for each physician, which, when applied to 14,715 physicians in the entire state, gives a total of 2,709 7/10 ounces, or 84,272, gm., of morphin prescribed by the physicians of this state during the year 1922.

On this basis also, 30 ounces, or 933 gm., of heroin prescribed by 7,559 physicians would give an average of 0.1234 gm. for each physician, which, when applied to 14,715 physicians in the entire state, gives a total of 58 88/100 ounces, or 1,815.83 gm., of heroin prescribed by the physicians of this state during the year 1922.

Of the physicians who answered the question, 5,362 stated that they did not prescribe any heroin in 1922.

STATUS OF HEROIN

To the question, "Do you believe heroin necessary in your practice?" 5,711 answered no; 1,201, yes; 404, occasionally, and 239 did not reply.

Under "occasionally" I have grouped a variety of replies which may be best expressed by that word. Most of those prescribing heroin believed it to possess special qualities useful in the treatment of bronchial conditions. Of the large percentage of practitioners answering this inquiry, approximately 80 per cent. deemed heroin a needless addition to their therapeutic armamentarium.

While so small a quantity of heroin was legitimately used by physicians in this state, more heroin is used by the criminal narcotic addicts in New York City than all other narcotic drugs combined. Ninety-five per cent. of the criminal drug addicts arrested in New York City use heroin regularly, adding cocain occasionally or whenever they can get it, and resorting to morphin only when they cannot get heroin. Placing the customers of the illicit narcotic street venders in New York City at a minimum of 10,000, based on arrest statistics, using at the average of 10 grains a day, we have 100,000 grains daily, or 36,500,000 grains, or 76,041 ounces, as the yearly quantity of heroin used by the criminal drug addict in New York City alone, against 58 38/100 ounces computed as being legitimately prescribed by the entire medical profession of the state. That is why I am seeking light on the subject, trying to find a way to shut off this flow, at the same time respecting the rights of the physician to prescribe.

These replies show that the majority of the addiction cases treated by the physicians are purely medical cases; that these patients require narcotics and are exempt under the Harrison drug act, or are being treated by the physicians in good faith for their cure and not addicts being supplied for their comfort.

As previously noted, my state census shows that these answers represent 51.37 per cent. of the physicians of the entire state of New York, who have treated 775 medical addicts in one year.

From these replies I arrive at the conclusion that, at this ratio, the number of medical addicts in the state of New York is 1,509.

Thus, it is definitely shown that the medical narcotic addict whose number can be estimated and who requires narcotics because of physical ailments is far in the minority in comparison with those whose numbers are ascertainable through arrest and whose activity is absolutely a police problem.

The questionnaire was sent out last June. Coincidentally, the Portuguese delegate to the Advisory Committee on Traffic in Opium of the League of Nations, proposed, June 5, 1923, "that, in view of the existing medical evidence, tending to show the possibility of completely doing away with the use of heroin in medical and surgical practice, the committee recommended to request our government to appoint a committee of inquiry with a view of ascertaining the possibility of completely abolishing the manufacturing of heroin and its use, and, in the event of the committee of inquiry deciding that manufacturing of heroin could not be done away with entirely, to inquire into its use being limited to certain types of cases, or in particular types of cases."

TABLE 4.—*Answers to Question as to Replacing Cocain*

	Yes	No	Occasionally	Unanswered
Physicians	5,158	1,280	534	587
Dentists	3,770	253	277	35

In the United States Army, the use of heroin has been interdicted by order of the Surgeon General.

In the United States Public Health Service, the use of heroin has been interdicted by the order of the Surgeon General.

In a large number of public hospitals, the use of heroin has been interdicted by order of medical boards and superintendents.

The health commissioners of Chicago and of New York City, simultaneously, thus expressed themselves: "Stop the use of heroin in all hospitals. It serves no purpose that other agents cannot accomplish as effectively, and without the attendant possibility of disaster."

COCAIN

Many physicians and dentists, in a desire to offset the dangers of cocain to their patients and to avoid the entanglement and the annoyance connected with complying to the Harrison Narcotic Law, have gradually substituted in their practice non-habit-forming synthetic compounds having otherwise similar attributes to cocain. Chief among these have been procain.

The answers to the question, "Do you believe that cocain can be advantageously replaced by non-habit-forming drugs, such as procain or similar preparation?" are given in Table 4.

Another question asked of physicians and dentists was: "Amount of cocain used in 1922?" The cards returned by 7,559, or 51.37 per cent., of the physicians and 4,335, or 60.89 per cent., of the dentists showed: physicians, 610 ounces, or 18,971 gm.; dentists, 1,716 ounces, or 53,368 gm.

An analysis of the replies received from physicians as to the need for cocain and the possibility of substituting some non-habit-forming synthetic product, such as procain, shows that only approximately 17 per cent. of those answering this question considered cocain indispensable. The majority of this 17 per cent. deemed cocain necessary in the treatment of nose and throat lesions, and there were also some ophthalmologists and genito-urinary specialists who preferred cocain when anesthesia of the eye membranes and of the urethral tract is an essential to examination and treatment. Most of the practitioners of these three groups use cocain topically only, rarely, if ever, prescribing it. Thus, it will be noted that, from these angles of medical practice, the danger of cocain habit forming is negligible. It will be further noted that about 83 per cent. of the physicians answering the inquiry on this point expressed the belief that cocain can be advantageously replaced by non-habit-forming drugs, such as procain or similar preparations.

Members of the dental profession were even more favorable inclined to substitute procain and like products for cocain, there being only 6 per cent. of those answering who believed cocain indispensable.

TABLE 5.—*Summary*

Figures received from 7,559 physicians, or 51.37 per cent. of the total physicians in the state of New York (14,715), and figures received from 4,335 dentists, or 60.89 per cent. of the total dentists in the state of New York (7,119).

Morphin prescribed in 1922 (physicians).....1,392 ounces (43,296 gm.)
Heroin prescribed in 1922 (physicians)..... 30 ounces (933 gm.)
Cocain prescribed in 1922 (physicians)..... 610 ounces (18,971 gm.)
Cocain used in 1922 (dentists).....1,716 ounces (53,368 gm.)

Number of narcotic addicts treated in 1922..... 775

Do you believe heroin necessary in your practice?

	Yes	No	Occasionally	Unanswered
Physicians	1,201	5,711	404	239

Do you believe cocain can be advantageously replaced by non-habit-forming synthetic drugs, such as procain or similar preparations?

	Yes	No	Occasionally	Unanswered
Physicians	5,158	1,280	534	587
Dentists	3,770	253	277	35

Applied pro rata for all physicians and dentists in New York state (population 10,384,144).

Morphin prescribed in 1922 (physicians).....2,709 ounces, or 84,272 gm.
Heroin prescribed in 1922 (physicians)..... 58 ounces, or 1,816 gm.
Cocain prescribed in 1922 (physicians).....1,187 ounces, or 36,931 gm.
Cocain used in 1922 (dentists).....2,818 ounces, or 87,639 gm.

Number of narcotic addicts treated in 1922.....1,509

CONCLUSIONS

1. The narcotic addict exists.

2. His addiction is the result of physical or medical causes in only 2 per cent. of all cases among the thousands observed by the police.

3. In those few instances of true medical addiction treated by the medical profession in the state of New York for the year 1922, the great preponderance show that they were treated for disease and not for drug addiction.

4. Because of the fact that addiction has its origin or is coupled with crime or with criminal environment in 98 per cent. of the police cases, the problem is in the category of criminology, and therefore comes within the province of the police.

5. The quantity of the various habit-forming drugs purchased by physicians and by dentists is well within the needs of their patients. These legitimate amounts represent only an infinitesimal proportion of what is trafficked in through underground channels.

6. Heroin has no specific uses in medicine in the opinion of approximately 80 per cent. of the practitioners consulted.

7. Cocain is useful in medical practice as a topical anesthetic in various conditions of the eye, the nose, the throat and the genito-urinary parts. Eighty-three per cent. of the physicians and 94 per cent. of the dentists whose answers are to hand are of the opinion that cocain can be dispensed with in practice through the use of procain or other non-habit-forming synthetic compounds.

8. Underworld addicts have a decided preference for heroin and cocain.

9. The international phase of this question is largely dependent on what the laboratory is likely to accomplish in the near future in the preparation of habit-forming drugs synthetically, and the education of the professions in the use and selection of non-habit-forming substitutes. Sooner or later, heroin, cocain and morphin will be possible of manufacture universally at a far less cost than that which now obtains through growth and treatment of the plants from which they are now derived. When that time comes, supply and demand can be regulated in comformity with economic conditions, plus international agreement as to traffic in these drugs.

10. The sharp distinction between the medical addict and the underworld addict will clear up many of the problems confronting the medical profession and the law-enforcing agencies. This will also destroy many ramifications of the leakage from legitimate sources to the underground criminal strata. There is a wholehearted cooperation on the part of every state and local governmental department, executive, legislative and judicial, to safeguard the interests of the public.

COMMENT

In the city of New York, narcotism has decidedly decreased during the last three years. This is evidenced by the fact that a beginner is now rarely found among the addicts recently apprehended. Constant vigilance is necessary, for relaxation on the part of the police would result in the immediate influx into this city of thousands of addicts from all over the country, and addiction would claim many new victims.

Only about 10 per cent. of the addicts arrested by the police are women. The percentage of female to male addicts is, however, much greater. They are not so liable to arrest, as comparatively few of them personally make their purchases on the street. It is delivered to them or bought usually through some male addict.

Evidence of the control of the situation is shown by the statistics of the ages of addicts. In 1921, when we were several months without a suitable narcotic law, in New York City, a large number of persons became addicts, mostly in the ages of 18, 19 and 20, and the peak age then was around 25 years. That is to say, there were more addicts giving the age of 25 years than any other age. In 1922, this peak age was 27 years, while this year the ages 27 and 28 are almost equal.

The questionnaire to which reference is made in this paper has added to our available knowledge of this subject. The medical and dental professions have given splendid cooperation, for which I am deeply appreciative. Their aid in securing the data, comprising expressions of opinion based on professional experience, utilizable for lay purposes, will be employed for the purpose of solving some of the questions of the narcotic menace confronting civilization, so that future generations may be free of a curse that has been interlinked with criminality through the ages.

DRUG ADDICTION

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This article is based on the experience of the last twenty years, during which time more than 5,000 patients addicted to morphinism were treated. None of these patients suffered from an organic disease that necessitated the continuance of the drug. In all instances the narcotic was withdrawn in less than two weeks' time, with no special preparation of the patient before beginning treatment. Withdrawal of the drug was sudden in every case without resorting to scopolamin in doses sufficient to produce delirium. There were no acute withdrawal symptoms, drug psychoses or serious asthenic symptoms. The total number of deaths from all causes in these addicts was six. There were no deaths due to withdrawal of the drug or treatment. These patients were no more trouble than any other patients when they actually knew that nothing they could do or say would produce for them another dose of morphin.

EFFECTS OF DRUG ADDICTION

The habitual use of any narcotic produces a moral, mental and physical deterioration. The addict does not require a narcotic to maintain a physical or mental equilibrium to accomplish his work. A man who does good work under the influence of a narcotic will do better work without it.

NUMBER OF ADDICTS

How many addicts there are, is a question. Reliable statistics are not obtainable. We do not believe that Chicago has ever had at any one time more than 5,000 addicts. We believe that chronic alcoholism is many times more common, and there are hundreds of deaths due to alcohol to each one caused by narcotics. Prohibition has not caused any decided increase in drug addiction. Ninety per cent. of our addicts have a habit dating back to the days before prohibition.

Addicts make poor criminals. They have no will power; their judgment is defective; they cannot be trusted, and they commit, as a rule, only petty crimes. They are looked down on by the more capable criminals.

Opium smoking and the taking of opium by mouth have almost disappeared. Cocain is always a pleasure or vicious habit, without true withdrawal symptoms. Heroin is usually the same, but its use leads to a true habit like that of morphin. Cocain and heroin will produce a psychosis more quickly than morphine, and their manufacture could be prohibited without therapeutic loss. Paregoric habitués are fairly numerous, some using as much as a quart a day.

There is a tendency to regard drug addicts as a peculiar class, set apart from their fellow men as a distinct type. It is true that most of them are recruited from the large class of inadequates with underlying defects of personality—the so-called psychopathic personality—but they are individuals; and many of the higher types are like other persons plus an addiction. No person is immune to opiate addiction. Morphin administered to any hundred men will make a hundred addicts; and only a very few of them will tolerate the abstinence symptoms or stop the use of the drug without treatment.

There are many individuals who are unsuspected potential narcotic addicts, who get along like the rest of us until alcohol or narcotic drugs come into their lives. Many of us, at some time in our lives, have taken much liquor; the potential narcotic addicts in time become chronic alcoholic addicts. The ones who do not succumb are not always the stronger willed; but the excessive indulgence holds no appeal to them, and often they get more pain than pleasure from it. So the experience is not repeated. The same is true with narcotic addicts. One should avoid repeating the dose of opiate when great relief is given or when more than an anodyne effect is secured, especially in neurotic patients.

When there is a real need, as in gastric crises of tabes, morphin can sometimes be given for weeks without the formation of a habit. As a rule, it is better to administer opiates by mouth without the patient's knowledge, and avoid the quick hypodermic relief.

TYPES OF PATIENTS

Seventy-five per cent of our private patients are physicians, and almost every one of them believed that he could use the drug carefully without developing an addiction, and was surprised and panic stricken when he found that he could not discontinue its use. If physicians do not know this fact, what can we expect from the laity? Every class of medical students should receive some instruction in habit-forming drugs.

Fifteen or twenty years ago, most addicts acquired the habit through physical disease or discomfort. Today the number of new addictions through physicians' prescriptions is small. The great majority of cases now result from association with addicts, following their advice in taking a "shot" or a "sniff" for "what ails you," and searching for new sensations. These are the pleasure users. Especially is this true in the larger cities, with their overcrowding, insanitary surroundings, and lack of facilities for healthful recreation. With such environment the drug habit is highly contagious, especially among minors. The vicious type is seldom found in small communities; he is essentially a city dweller—a product of city life.

The most available drug in a locality determines the nature of the majority of addictions in that community. In the South, most of the negro users are cocain habitués. In New York, out of 7,464 cases, 96.5 per cent. were found to be heroin addicts. In Chicago, less than 4 per cent. of our addicts are heroin users. In our last hundred cases there were two patients addicted to heroin, and one of these had arrived recently from New York. Heroin is the common drug in New York because that city has been the center of established, underground, organized traffic in that drug—a business with distribution in pool rooms, low saloons and similar gathering places, and with pedlers out working up a trade.

There is something wrong in the mental make-up of an individual who takes a sniff of heroin or a shot of morphin because some one tells him it will do him good. Call him a constitutional psychopath, weak-minded or what one will; he represents a type made up of our population's misfits. As a rule, these are not of the vicious or criminal class, but rather of the ne'er-do-well sort. Seventy-five per cent. of the addicts we meet today who do not belong to the vicious type are made up of the inadequate personalities who are unwilling or think they are unable to stand physical or mental stress without the relief of narcotism. The majority of addicts do not come from the dull, phlegmatic type, but from the quick, nervous, oversensitive, high-strung sort of persons.

PERSONALITY OF THE ADDICT

The underlying causes of narcotic addiction lie in the personalities of the individuals. Each addict uses a narcotic for a reason or cause that is sufficient to himself. The nature of the disorder that impels him to use narcotics is mostly psychologic, and not physiologic or pathologic. Opiates have a very seductive effect on persons who are out of step with the rest of the world. They are usually taken in youth to give added self-confidence, to feel and enjoy life more abundantly; in middle age, to avoid life's conflicts by shutting oneself behind a wall of narcotism, and to overcome fatigue incident to excess of other kinds; and in old age, to forget. The vicious type finds the drug a panacea for the physical and mental ills that are the result of the lives they are living.

All addicts get comfort and pleasure from the narcotic drugs in addition to the anodyne effect. Take the pleasurable effects out of the use of opium and its derivatives, leaving only the physical, pain-removing property, and 90 per cent. of our addicts would leave the drug untouched. When an addict says that he takes his drug only to feel normal, his ideas of normal are normal plus. Life and surroundings are brighter to one under the influence of an opiate, just as they are to one under the influence of a moderate amount of alcohol. Both serve hurt feelings, and cover up the hard facts of life as they really are. This pleasure effect of narcotics varies in different persons from a feeling of comfort and relief to a wild, delirious "jag." One-half grain of morphin will affect some people like a champagne spree during its most pleasant stages.

Whatever the reason for the addiction, the end-results are the same. The continued narcosis locks up the secretions and excretions of the body, and catabolic products and intestinal fermentation produce a mixed toxemia. When an attempt is made to stop the use of the drug, pathognomonic withdrawal symptoms appear. These are the result of the release of cells from a long-maintained functional depression or inhibition, taking the form of exaggerated activity of the different organs. These symptoms last from forty-eight to seventy-two hours. The withdrawal symptoms vary, and are not so severe as ordinarily supposed. There is no danger of death when the addict is in fair condition. The drug can be withdrawn abruptly in severe illnesses without the patient's knowledge, or a rapid reduction can be made, going from 1 or 2 grains to nothing in three or four days. The asthenic symptoms which follow the detoxication are due to the nervous exhaustion following the long period of continuous narcotization of the nerve cells.

In the later stages of morphin addiction, the libido is suppressed and the physiologic functions of regeneration are suspended. Most female addicts develop amenorrhea. During denarcotization treatment, the exaggerated activity is demonstrated by as many as six or seven emissions or spontaneous organisms within a few hours. Later during convalescence in the female, the menses, which may have been suspended for months or years, are reestablished.

TRANSMISSION OF DRUG HABIT

We have never seen an infant born an addict because the mother was an addict. We have never seen morphin addiction in children except a moderate craving induced in the very young by too frequent administration of paregoric. The youngest addict we have ever found was 16. There are very few under 21 in Chicago.

Our conclusions regarding transmission of the drug habit from mother to infant and regarding child addiction are confirmed by Drs. N. Sprout Heaney and Joseph B. De Lee, obstetricians, and by Isaac A. Abt, Julius H. Hess and Clifford G. Grulee, pediatricians.

The desire for the drug after detoxication and subsidence of asthenic symptoms is in the mind only, and is not based on any physical or chemical need. All our addicts behave normally when the drug could not be obtained. That there is a psychic element of no small importance in the withdrawal symptoms, so called, is further demonstrated by the experience of one of us with several hundred patients suffering from the depressed phase of manic-depressive insanity, and treated by the oral administration of opium in very large doses, and, in many instances, for periods of from six months to one year. Not one of these patients knew what drug he was taking or ever showed untoward results when the drug was withdrawn, or in any way gave evidence of a desire to continue its use. Nor do we recall a single instance recorded in the medical literature of the period during which this form of treatment was administered quite commonly, in which either withdrawal symptoms or a craving for the narcotic was reported. This seems particularly significant in consideration of the prevalent view that the basis of manic-depressive insanity is almost always heredity—an unstable nervous system. In this connection, the experiments of Biberfeld[1] are not without interest. He repeatedly injected animals with morphin, but failed to produce a craving for the drug. This seems all the more important, since it is a matter of common experience that animals readily acquire a craving for alcohol. We have seen this repeatedly in dogs, and know of at least one bear who was a drunkard.

The reports claiming specific changes in the blood of drug addicts failed of confirmation by competent investigators. Our clinical experience seems to demonstrate that the perversion of cell chemistry caused by continuous narcotization is not a permanent change. Very few of our patients have serious asthenic symptoms lasting two or three weeks. Among these few are those with a primary neurosis plus an addiction. The fault lies in the addict's mind; and successful treatment is directly proportional to relief of the neurosis.

DEVELOPMENT OF TOLERANCE TO DRUGS

The problems and underlying reasons for the excessive use of narcotics and alcohol are one and the same.

1. Biberfeld, Johannes: Ueber die Spezifizität der Morphingewöhnung, Biochem. Ztschr. 77: 283, 1916.

Drug addiction is not so much of a disease, in and of itself, as is chronic alcoholism, which has a true demonstrable pathology. Are we any more justified in supplying a drug addict with his drug than an alcoholic addict with his alcohol? Hundreds of thousands of people endure as great or greater pain, grief, mental distress and physical stress without narcotic; and the addict will do the same if he has to. Whether we are 6 or 60, we do what we have to to get what we want. Many of our boys got shell-shocked to keep out of the trenches; and one third of our drug patients claimed a pathologic state as the cause of their addiction. About 20 per cent. of them really believed that they had a disease necessitating the narcotic, and convinced the physician who was not familiar with addicts that they were incurable.

A true comparison can be drawn between drug addiction and other milder addictions. Any alcoholic addict who is taking considerable amounts begins to suffer when his alcohol is stopped, or when attempts are made to reduce his regular dose. He has true abstinence symptoms, which are quite severe, and he may develop delirium tremens. Especially in cases of fractures or of pneumonia he may develop a delirium which assumes the characteristics of this condition. In the morning the alcoholic addict needs a drink before he can carry on; and if he does not get it he is a nervous wreck. As with opiates, a tolerance is developed to enormous quantities of alcohol.

In tea and coffee drinking, a tolerance is established to caffein; and in cocoa drinking to theobromin. In chronic poisoning by one of these, the patient has mild abstinence symptoms—depression, tremulous feeling, loss of color, irritability, headache, and, in extreme cases, cardiac symptoms.

Tobacco users develop a tolerance to nicotin; cigaret inhalers, to carbon monoxid poisoning. So, likewise, do the chronic tobacco users display a series of mild abstinence symptoms when the accustomed smoke or chew is missed.

These withdrawal symptoms experienced in chronic caffein, tobacco and alcohol users, which are promptly relieved by a renewed dose of the accustomed poison, are the same as, only milder in form than, the abstinence symptoms encountered in drug addiction. An habitué develops a tolerance to large doses of morphin, and it is a question in our minds whether they can produce a fatal result by an overdose. This immunity seems to extend itself to large doses of other drugs, notably barbital, chloral, bromids, scopalamin and atropin.

DEATHS FROM NARCOTICS

That the number of deaths due to narcotics is not great is shown by the records of the Cook County coroner's office, as furnished by Dr. William D. McNally, coroner's chemist. Since 1916, an average of six deaths from narcotics a year have occurred in Chicago and Cook County, and this figure includes victims who were not habitual users of drugs.

If we say that drug addiction is a mysterious disease on account of the tolerance developed, and the appearance of a definite pathognomonic train of symptoms which appear in unsupported withdrawal of the drug—which are promptly relieved by a dose of the drug—then we must conclude that we have the same condition in chronic caffein, tobacco and alcohol users. Of course, opiates are many times stronger than these other drugs, and we must expect a much more strongly fixed addiction. But drug addiction creates no physical disease necessitating its own continuance or renewal after the habit is broken.

The solution of the drug evil does not rest on the administration of any specific cure, but rather on the removal, where possible, of the underlying causes for which the drug addiction is merely an expression. These causes vary in individual cases. It is not a mass problem. It will be necessary to take each individual patient, locate the cause of his addiction, and remedy or remove this cause before a successful result can be expected. The craving for narcotics is not a purely physical need, but is chiefly mental and can be replaced by some other great desire. When there is not too much mental deterioration, we can sometimes produce a mental "kick" that is bigger than the idea or desire or need of a narcotic. Then our treatment will be successful. In the normal or nearly normal narcotic user who has acquired the habit through physical disease or discomfort which no longer exists or can be eradicated, a permanent cure can be expected, if the patient is sincere and willing to stand, as most of us do, the mental and physical stress that is part of life's conflicts without resorting to narcotics. A contented man does not use narcotics.

Deaths from Narcotics in Cook County

	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	Grand Total
Cocain	1	1	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	6
Codein	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	3
Heroin	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	1	5
Laudanum (tincture of opium)	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Morphin meconate	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Morphin	12	0	2	9	6	2	8	7	16	12	13	6	6	11	4	4	10	7	4	133
Narcotic	25	19	11	0	7	12	4	2	7	5	5	3	2	0	0	0	0	0	0	102
Opium	0	0	0	2	4	2	2	5	1	1	2	0	0	0	0	0	0	0	0	19
Total	38	21	13	11	17	19	15	15	21	23	20	9	9	11	4	4	10	7	5	272

Most relapses are not due to pain or ill health, but to a desire for narcotic relief, which may mean anything from simple ease and forgetfulness to wild exhilaration. For some patients, good health plus normal life do not replace the sensations that narcosis means, and the possessors of these morbid types of personality will use narcotics as long as they live and narcotics are available.

Very few addicts come for treatment until they begin to get more grief than pleasure from their drug. The average addict will not voluntarily submit to institutional or other withdrawal treatment so long as he or she can obtain a supply of the drug. It is purely a pleasure and pain problem. When the toxic effects begin to give them more grief and pain than pleasure, they are willing to quit until their system clears up so that they can get more pleasure than pain. Even in the better types of addicts, judgment is defective, relapses often occurring because the patients believe they can take an eighth or sixteenth grain dose without danger, or because, before they became addicted the first time, they may have used their drug off and on for some time without severe absti-

nence symptoms. They do not fear it as they should. But the experiment ends like that of the alcoholic addict who deceived himself with the belief that he could take one drink and then leave it alone. The truth is that the first addiction invariably begets an increased susceptibility to the second; a mental habit develops after the use of a few doses. Also, a normal person who acquires an accidental addiction and who is successfully treated is much more susceptible to pain and grief. He will not stand mental and physical stress as he did before the addiction. This we believe due to the memory of the quick relief afforded by the use of the narcotic.

Drug addicts, then, may well be divided into two groups: the "accidental" addict, who develops the habit after the drug has been taken for relief of pain; and the larger group of those who take to narcotics because of nervous instability—because they possess psycopathic personalities. Of these two groups, the first furnishes a relatively small percentage, and has by far the better prognosis. The majority of these patients, however, fall into the second class, and with them the probability of a permanent cure under existing conditions is very slight. There is only one measure that will prevent a relapse, and that consists in making the drug unobtainable.

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THE INTRAPERITONEAL ADMINISTRATION OF NEO-ARSPHENAMIN

PRELIMINARY REPORT *

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The intraperitoneal administration of fluids, such as physiologic sodium chlorid solution,[1] glucose,[2] and sodium bicarbonate,[3] in the treatment of the diarrheas and the acidoses of infancy, is already established as the method of choice in certain selected instances in which the usual procedures of intravenous, intramuscular and subcutaneous injections are not practical, for well known reasons. Transfusion [4] by the intraperitoneal route has recently been revived, and is now used in the treatment of certain conditions in infancy.

That the peritoneum serves as an absorbing membrane can no longer be questioned. However, in intraperitoneal therapy, it is essential to determine the reaction on the part of the peritoneum to the solution administered, as this reaction varies under certain definite conditions and may result in temporary or permanent injury of the mesothelial cells. Should permanent injury of the mesothelial cells occur, as is evidenced by failure of the desquamated areas to recover, and the eventual formation of connective tissue, then this method must, of course, be condemned; but, if solutions are absorbed in their entirety, with no lasting effect, with complete recovery of the injured cells, and if such solutions through this method of administration result in a change in the parenchymatous organs no different than that observed in the older and well established methods of administration, we may then infer that this procedure is safe and that this method may be used to advantage in selected instances in which the older methods cannot be employed.

It is well known and generally agreed that infants with congenital syphilis either get no arsenic in any form, with any degree of safety, or at best get very little, on account of the difficulty of administration. The administration of arsenicals through the fontanel has not assumed any great degree of popularity, owing to the severe and often fatal reactions that occur. Intramuscular injections of arsphenamin and neoarsphenamin have likewise proved impracticable, while the jugular route has not become universal in its application because of technical difficulties. The use of sulpharsphenamin intramuscularly has yet to prove its therapeutic value. Congenital syphilis is probably not adequately treated through the mother's milk, although the mother may be under intensive therapy. The many methods in use today for the administration of arsenicals to infants illustrate the general dissatisfaction with any one of them.

The effect of the intraperitoneal injection of organic arsenic must of necessity differ to some degree from that of the injection of physiologic sodium chlorid solution, blood, sodium bicarbonate, etc., since arsenic exerts both a local and a systemic toxicologic effect on body tissues. It is well known that arsenicals produce a systemic effect toxicologically, no matter how administered, and this effect must be considered in addition to the direct effect on the viscera and tissues coming in contact with the solution, when it is administered by the intraperitoneal route.

That the therapeutic administration of arsenical preparations into the peritoneal cavity may not have its attendant dangers cannot be denied; but the dangers are no more than those incident to the administration of any solution into the same channel, and in proper hands this method of therapy has already been well established. It is doubtful whether this procedure will carry with it as high a percentage of anaphylactoid reactions and fatalities as that of the intravascular route with the consideration, *a priori*, that no permanent injury result from this procedure. Clinically, at least, the intraperitoneal route far surpasses both in ease of administration and in safety the injection of fluids into the longitudinal sinus. It is conceivable that the incidence of a rapid and violent systemic reaction will be less, if not nil, and the number of fatalities greatly decreased by this method of arsenical therapy, possibly because of differences in the rate of absorption by these two methods. The rate of absorption following intraperitoneal injections is slower than that following intravascular administration, through either superficial veins or the longitudinal sinus. The body is not suddenly forced to cope with the entire therapeutic amount of the drug, as it must when the other methods are used.

With the view of determining the practicability of administering arsenical preparations intraperitoneally in the treatment of infants with congenital syphilis, thirty-five rabbits were injected with neo-arsphenamin. The drug was administered both in dilute and in concentrated solution, in single and serial injections, the latter at weekly and ten day intervals. Observations of the effects were carried on from twenty-four hours to more than a year after the injections. The animals were killed at various intervals and examined. The tissues were examined both grossly and microscopically and tested for their arsenic content. Urines and peri-

* From the Laboratory Department, Mount Sinai Hospital.

1. Denzer, B. S., and Anderson, A. F.: The Absorption of Fluid Injected into the Peritoneal Cavity, Am. J. Dis. Child. **21**: 565 (June) 1921.
2. Cunningham, R. S.: Am. J. Physiol. **53**: 488 (Oct.) 1920.
3. Epstein, J. W.: Arch. Pediat. **37**: 656 (Nov.) 1920.
4. Siperstein, D. M., and Sansby, J. M.: Proc. Soc. Exper. Biol. & Med. **20**: 111, 1922.

toneal fluids were examined whenever present. In the determination of the arsenic content of body tissues and fluids, the modified Gutzeit test [5] was employed.

In considering the effect of organic arsenicals administered intraperitoneally, many factors presented themselves for consideration:

1. The direct effect of neo-arsphenamin, arsphenamin, silver arsphenamin and other preparations on the organs and tissues exposed.
2. The rate of absorption of the various preparations and the time required for complete recovery of the peritoneal lining.
3. The effect of repeated injections on the absorptive power of the peritoneum.
4. The effect of repeated injections on the peritoneal lining, histologically.
5. The general effect on the body as a whole.
6. The determination of the best vehicle to be employed as the solvent and the concentration to be used.
7. The mechanism of absorption.

NEO-ARSPHENAMIN

Briefly, the reactions of neo-arsphenamin as observed in this work may be thus enumerated:

1. The injection of neo-arsphenamin intraperitoneally results in a sterile chemical peritonitis with desquamation of mesothelial cells and the appearance of an exudate of serum, fibrin, and red and white blood cells, and, in the latter, many characteristic phagocytic endotheliocytes. All peritoneal fluids, as observed within from twenty-four to forty-eight hours, were usually slightly to moderately turbid and frequently pink tinged, the turbidity decreasing directly as the time interval between the injection and the necropsy increased.

2. Generally, absorption was complete in twenty-four hours. However, in some instances, from 1 to 2 c.c. of fluid could be recovered at the end of from thirty-six to forty-eight hours. The rate of absorption of neo-arsphenamin made up in sterile distilled water appeared slightly more rapid than when made up in physiologic sodium chlorid solution.

3. From the work done thus far, it cannot be stated that repeated injections either increase or decrease the absorptive power of the peritoneum.

4. In general, the peritoneum remains smooth, moist and glistening. At the point of entrance, depending on the time of examination after the injection, there can be seen changes varying from a fibrinous exudate to complete organization. Small, whitish masses of exudate were noted here and there on the parietal peritoneum and viscera in the first twenty-four to forty-eight hours after an injection. In rare instances, adhesions were present in those animals permitted to live many months after the last injection. However, there were animals in the same series in which no changes were observed when killed within two weeks after the last injection. In these animals the peritoneum at this time was smooth and glistening throughout.

It would appear in some instances that the reaction had been too severe, and that considerable exudation with subsequent organization had occurred. However, in only one or two rabbits could it be said definitely that such was the case. Pathologic changes in rabbits vary to such an extent that other factors must operate in animals observed over extended periods of time (the longest period of observation was 439 days). At least in those animals in which sterile distilled water was used as the solvent, there was no evidence of any permanent injury to the peritoneal surfaces or the viscera, complete recovery apparently having occurred within twelve days.

There was generally, although not in every case, a perihepatitis and perisplenitis of varying degree, representing the most constant finding in the animals after several days and more from the time of injection. The liver, in addition, showed a characteristic arsenic effect, a fatty change, the intensity varying directly as the time interval after the injection. The intestinal tract was usually normal in appearance except in some instances within from the first twenty-four to forty-eight hours after an injection, at which time engorgement of the superficial vessels was noted. In two of the animals left a long time, multiple abscesses were present in the groins. The other tissues showed nothing of note.

5. Microscopic examination of the tissues within two weeks after the last injection revealed changes similar to those observed when arsenic is administered by other routes. There is probably no organic arsenical in use at the present time which does not cause microscopic changes in the parenchymatous organs.[6]

With these facts at hand, it was determined to try this procedure clinically at the first opportunity. The following case report illustrates the results that were obtained by this method.

Gain in Weight and Wassermann Reaction During Administration of Neo-Arsphenamin Intraperitoneally

Date	Weight, Kg.	Neo-Arsphenamin, Gm.	Wassermann Reaction
4/5	3.402	Delivered	Four plus
6/2	5.000	0.03	Four plus
6/13	5.452	0.04	Four plus
6/23	5.480	0.04	Negative
7/6	5.830	0.04	Negative
7/16	6.060	0.04	Negative
7/26	6.435	0.04	Negative

REPORT OF CASE

A. K., a white boy, was born, April 15, 1923. The mother was a tertipara, and first came under observation in the outpatient department of Mount Sinai Hospital between the seventh and eighth months of pregnancy. The Wassermann test was repeatedly four plus. At delivery, the Wassermann reaction of both uterine and placental blood showed a four plus reaction. Five weeks after delivery, blood from the baby was sent to four laboratories. All reported four plus in all dilutions. At no time did the baby show evidence of a congenital syphilis. Two other children showed negative Wassermann reactions, and presented no evidence of congenital syphilis.

Six injections of neo-arsphenamin were administered intraperitoneally at ten day intervals, 0.04 gm. being administered each time except the first, at which time 0.03 gm. was given. The baby was admitted into the hospital each time and discharged twenty-four hours later. The solution employed was 0.5 per cent. neo-arsphenamin in distilled water. No reaction followed any of the injections, the behavior of the baby differing in no way than before the injection. There was a steady increase in weight, from 5 kg. at the first injection to 6.4 kg. at the last injection, extending over a period of two months.

SUMMARY

1. Neo-arsphenamin was injected intraperitoneally into thirty-five rabbits. The reactions that followed varied somewhat. Those animals receiving dilute solutions of the drug differed in their behavior from those receiving concentrated solutions in that they showed the greater discomfort, being content to lie quietly, with

5. Sanger and Black: Proc. Am. Acad. Arts & Sc. **43**:8 (Oct.) 1907.

6. Brown, W.: Bull. Johns Hopkins Hosp. **26**: 309, 1915.

heads retracted, and respirations increased. Recovery was usually complete in a few hours. Those animals receiving concentrated solutions continued their activity in many instances, and regained their normal activity in shorter time than those receiving the dilute solutions. No difference in behavior was observed with either physiologic sodium chlorid solution or distilled water.

2. Injections were given in single and multiple doses, from 90 to 105 mg. per kilogram of body weight in each series. The animals were killed from twenty-four hours to 439 days after the last injection.

3. Neo-arsphenamin was administered intraperitoneally with distilled water and physiologic sodium chlorid solution as the solvents, in solutions of 1 and 2 per cent.

4. One patient with congenital syphilis was treated with neo-arsphenamin intraperitoneally with beneficial results.

CONCLUSIONS

1. Neo-arsphenamin injected intraperitoneally in rabbits causes usually a mild peritonitis which heals promptly.

2. It is my opinion that the use of the intraperitoneal route for the administration of neo-arsphenamin is a safe procedure and may be of aid in the treatment of congenital syphilis.

3. Neo-arsphenamin is probably best administered in sterile distilled water, as the least reaction occurs with this vehicle.

4. Neo-arsphenamin is probably best administered in small quantities of solution, concentrated rather than dilute.

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ESTIMATION OF BLOOD SUGAR BY THE FOLIN-WU METHOD

USING 0.1 C.C. OF BLOOD*

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For some time a need has been felt for an accurate method of blood sugar estimation, which would require only a very small amount of blood. Such a method has become particularly desirable in connection with the insulin treatment of infants, small children and others, from whom the usual amount of blood cannot be readily taken. It would be again of value in studying the blood sugar curves of adults under insulin treatment from whom blood must be taken at frequent intervals.

A number of methods requiring comparatively small amounts of blood have been devised,[1] but for one reason or another none seems to have come into general use for routine clinical work. Some methods require that the blood be weighed, which procedure, while tending toward greater accuracy, practically eliminates the method for rapid clinical work. Other methods involve the collection of the blood from a bleeding surface in a pipet, which means either that the patient must go to the laboratory, or that the blood must be measured and the determination started at the bedside. The purpose of this investigation was to devise a procedure that would be fairly rapid, sufficiently accurate, and yet avoid these objectionable features.

It seems to be generally agreed that the Folin-Wu blood sugar method is the most reliable colorimetric method now in use. Therefore, our first step was to test the Folin-Wu procedure, using one fourth of the usual amounts of solutions employed in the color development. In place of the special Folin-Wu sugar tubes, small, slender 10 c.c. serologic tubes were used. At first, various sugar standards were tested, using 0.5 c.c. each of sugar, alkaline copper and molybdate phosphate solutions in place of 2 c.c. After color development, the solutions were diluted to 8 c.c., and compared in a colorimeter, one solution being used as a standard. The results were entirely satisfactory. We then made determinations, using 0.5 c.c. of protein-free blood filtrate prepared by the regular Folin-Wu procedure. The results were very close to those obtained by the regular method using the same filtrate.

TABLE 1.—*Comparison of the Results of Fifteen Consecutive Determinations by Both Methods*

Blood No.	Patient	Blood Sugar, Mg. per 100 C.c. Regular Folin-Wu Method	Blood Sugar, Mg. per 100 C.c. Micro Folin-Wu Method	Difference	Per Cent. Difference
1	Mr. S.	166	168	+2	1.2
2	Mrs. B.	95	95	0	—
3	Mrs. O'C.	108	102	—6	5.5
4	Mr. T.	150	150	0	—
5	Mr. C.	150	145	—5	3.3
6	Mrs. E.	125	112	—13	10.4
7	Mrs. T.	136	143	+ 7	5.1
8	Mr. H.	340	294	—46	13.5
9	Mrs. S.	100	100	0	—
10	Mr. M.	380	400	+20	5.3
11	Mr. S.	145	152	+ 7	4.8
12	Mr. D.	98	100	+ 2	2.0
13	Mrs. H.	167	174	+ 7	4.2
14	Mrs. Z.	81	82.8	+ 1.8	2.2
15	Mr. H.	214	229	+15	7.0
	Average	163.7	163.1	—0.6	0.36

From these preliminary steps it became apparent that 0.5 c.c. of blood filtrate would suffice for an accurate blood sugar determination by the Folin-Wu method. It then remained to determine from how small a volume of blood 0.5 c.c. of filtrate could be obtained. By centrifugating instead of filtering in the preparation of the protein-free blood filtrate, it was found that 0.1 c.c. of blood would easily furnish 0.5 c.c. of the filtrate. We then proceeded to determine the sugar content of a series of bloods, using both the regular Folin-Wu method and the 0.1 c.c. modification. More than 100 blood samples have been run by both methods, and in no case have we failed to obtain 0.5 c.c. of filtrate from the 0.1 c.c. of blood. The agreement in the results has been entirely satisfactory, from a clinical standpoint at least. The average difference in the results by the two methods is around 5 per cent. Occasionally, it has amounted to from 12 to 15 per cent., and again we have obtained a number of absolute checks. Table 1 shows the results obtained by both methods on fifteen consecutive determinations. Many of the bloods were from diabetic patients.

To test the accuracy of the method further, two bloods were chosen, and very careful duplicate determinations of sugar content were made by the regular Folin-Wu method. Determinations were then made by the micromethod, but instead of laking the blood in distilled water it was laked in known sugar solutions. This amounted to adding a known quantity of sugar to the bloods whose sugar content had been determined.

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1. A survey of various micromethods is given by Lynch, G. R.: The Estimation of Sugar in the Blood, Lancet 1: 1178 (June 9) 1923.

The recovery of added sugar by the micromethod is shown in Table 2.

In order to make the procedure as simple as possible, we have adopted Haden's[2] modification of the Folin-Wu method of preparing the protein-free filtrate. Haden suggests laking the blood in eight parts of twelfth normal sulphuric acid and then adding one part of 10 per cent. sodium tungstate, thus making one less step in the preparation of the filtrate. This change has been found to make no difference in the results, and is recommended only for the reason that it eliminates one step. If any one should object to this procedure for any reason, the blood may be laked in seven parts of distilled water and one part each of 10 per cent. sodium tungstate, and two thirds normal sulphuric acid added, as in the original Folin-Wu directions. Both methods give a clear, water-white filtrate in sufficient amount.

METHOD

The reagents are the same as used in the regular Folin-Wu method, but for convenience they are described briefly.

Standard Sugar Solutions.—These are: (1) stock solution of 1 per cent. glucose preserved with toluene or benzoic acid; (2) solution containing 1 mg. of sugar per 10 c.c. preserved (5 c.c. of stock solution diluted to 500 c.c.); (3) solution containing 2 mg. of sugar per 10 c.c. preserved (5 c.c. of stock solution diluted to 250 c.c.).

Alkaline Copper Solution.—This consists of 40 gm. of pure anhydrous sodium carbonate; 7.5 gm. of tartaric acid, and 4.5 gm. of crystallized copper sulphate. The sodium carbonate is dissolved in about 400 c.c. of water. The tartaric acid is added, and, when dissolved, the copper sulphate is added. The mixture is made up to 1 liter.

TABLE 2.—*Recovery of Added Sugar by Micromethod*

Blood	Sugar Found by Regular Folin-Wu, Mg. per 100 C.c. Blood	Sugar Added, Mg. per 100 C.c.	Total Sugar Present, Mg. per 100 C.c.	Sugar Found by Micro Method, Mg. per 100 C.c.	Error in Mg. per 100 C.c.	Percentage of Error
1 A	139	70	209	205	−4	1.9
1 B	139	87.5	226.5	227	+0.5	0.2
2 A	149	70	219.0	214	−5	2.3
2 B	149	87.5	236.5	241	+4.5	1.8

Molybdate Phosphate Solution.—This consists of 35 gm. of molybdic acid; 5 gm. of sodium tungstate; 200 c.c. of 10 per cent. sodium hydroxid; 200 c.c. of water, and 125 c.c. of 85 per cent. phosphoric acid. The hydroxid and water are added to the molybdic acid and tungstate, and the mixture is boiled for from thirty to forty minutes to remove ammonia. It is cooled, diluted to 350 c.c., and the phosphoric acid is added. It is then diluted to 500 c.c.

Collection and Preservation of the Blood.—Small, wide-mouthed, homeopathic vials (14 by 25 mm., 2 c.c. capacity) are used for collecting the blood. These vials are prepared by adding to each 2 drops of a 1 per cent. solution of potassium oxalate, rotating to distribute the oxalate about the sides, and drying over a low flame, or in the oven.

The blood may be taken from the ear or finger following puncture. The puncture should be deep enough to insure a free flow of blood, if possible. Pressure may be applied a short distance from the puncture, if found necessary. After the collection of 4 or 5 drops of blood, the capsule is immediately rotated to insure mixing with the oxalate.

If the sugar determination cannot be made at once, steps must be taken to preserve the specimen against deterioration. This is accomplished by the addition of a trace of formaldehyd, as suggested by Denis and Aldrich.[3] A toothpick is dipped in solution of formaldehyd, and the excess liquid is shaken off. If the few drops of blood is stirred with the toothpick wet with formaldehyd, enough is introduced to preserve the blood for two or three days even when kept at room temperature. Of course, the vial must be tightly stoppered. Unless this precaution is taken, sugar determinations on specimens of blood kept at room temperature for several hours are of no value whatever. The sugar content of normal blood has been found to fall about 40 or 50 per cent. when kept for twenty-four hours at room temperature. Birchard[4] has shown that even when the blood is kept on ice the decrease in the sugar content is prompt and fairly rapid.

TABLE 3.—*Difference in Sugar Content of Blood Samples With and Without a Trace of Formaldehyd, After Standing for Various Lengths of Time at Room Temperature*

Blood No.	Sugar Found	With Formaldehyd	Without Formaldehyd
1	When taken	138	138
	After 24 hours	137	75
	After 48 hours	133	0
	After 72 hours	138	0
2	When taken	119	119
	After 48 hours	115	0

PROCEDURE

With a 1 c.c. Mohr pipet, 0.8 c.c. of twelfth normal sulphuric acid is measured carefully into a 15 c.c. centrifuge tube; 0.1 c.c. of the blood is measured in an accurate 0.1 c.c. pipet graduated to the tip. With a clean cloth, any blood on the outside of the pipet is removed. The blood is blown gently from the pipet into the acid in the centrifuge tube, and while one is still blowing through the pipet, the tip is drawn up the side of the tube. The tube is shaken carefully to wash down any blood on the sides. Then 0.1 c.c. of 10 per cent. sodium tungstate solution is added, and the mixture is stirred thoroughly with a small glass rod. The rod is removed and the mixture centrifugated at high speed for from five to ten minutes. There will then be at least 0.7 c.c. of clear supernatant blood filtrate. To obtain 0.5 c.c. for the determination, a 0.5 c.c. Ostwald pipet, clean and dry, is inserted to within about 1 mm. of the surface of the sediment in the tube. The pipet is held firmly in place, and the liquid is drawn slowly up above the graduation on the pipet. The liquid is let back to the mark, and the 0.5 c.c. is transferred to a 10 c.c. serologic tube graduated at 8 c.c.. To two similar tubes are added 0.5 c.c. each of the standard sugar solutions, No. 2 and No. 3. Then 0.5 c.c. of alkaline copper solution is added to each standard and to the unknown. The tubes are transferred to boiling water for six minutes; then to cold water for two minutes. To each tube, 0.5 c.c. of molybdate phosphate solution is added, and after all copper is dissolved, distilled water is added to the 8 c.c. mark. The contents are mixed thoroughly, and compared in the colorimeter with the standard solution that is nearest in color to the unknown.

CALCULATION

$$\frac{\text{Reading of standard}}{\text{Reading of unknown}} \times \text{mg. sugar in standard} \times 2{,}000 = \text{mg. /100 c.c.}$$

For example, if an unknown reads 18 against Standard 3 set at 20, the calculation will be

$$\frac{20}{18} \times 0.1 \times 2{,}000 = 222.2 \text{ mg. per hundred cubic centimeters}$$

COMMENT

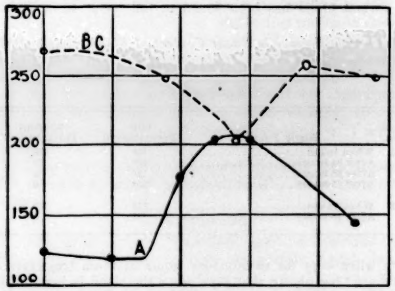
Objections will doubtless be raised on the ground that any such small scale procedure is impracticable. It might appear so at a glance, but on careful analysis no grounds will be found for such an objection. The greatest chance for error is certainly in the measurement of the blood, and this chance of error can never be eliminated from any method using the same amount of blood. Therefore, the blood must be measured as

2. Haden, R. L.: A Modification of the Folin-Wu Method for Making Protein-Free Blood Filtrates, J. Biol. Chem. **50**: 469 (June) 1923.

3. Denis, W., and Aldrich, Martha: Note on the Preservation of Specimens of Blood Intended for Blood Sugar Determinations, J. Biol. Chem. **44**: 203 (Oct.) 1920.

4. Birchard, Dora E.: Loss of Sugar in Oxalated Blood, J. Lab. & Clin. Med. **8**: 346 (Feb.) 1923.

accurately as possible for every determination. The pipet *must* be wiped clean before being placed inside the centrifuge tube. The acid and tungstate solution must also be carefully measured, but no special technic is required at any point. After centrifugating, the removal of 0.5 c.c. of filtrate may prove difficult on the first attempt; but, if directions are followed, that difficulty will be promptly overcome. In fact, no greater care is necessary in this method than should be exercised in any chemical determination.



Blood sugar, milligrams per hundred cubic centimeters: solid line, normal person taking a large amount of sugar; broken line, patient with diabetes to whom insulin was administered; *A*, 200 gm. of syrup; *B*, 10 units of insulin; *C*, lunch consisting of protein, 29 gm.; fat, 29 gm.; carbohydrate, 25 gm.; time between vertical lines, one hour.

For best results it is advisable to have on hand a number of 0.1 c.c. pipets graduated to the tip. The bore should be very small so that the total length of the column will be about 9 inches. After use, the pipets are washed in water, alcohol and ether, and sucked dry by means of a water pump.

The procedure for collecting the blood which has been incorporated as a part of the method is, in our opinion, an important point. In comparison with the usual method of taking the blood directly from the bleeding surface in a pipet, it offers numerous advantages:

1. A number of samples may be collected and sent to the laboratory at one time.
2. Blood samples taken in vials, if preserved with formaldehyd, may be kept for several days before analysis. This would make it possible for samples to be sent through the mail. The method, therefore, is not limited to use in hospitals or large clinics.
3. There is no danger of clotting in the pipet.
4. The blood can be measured much more accurately in the laboratory than at the bedside.
5. It is more agreeable to the patient.

We are aware of the fact that descriptions of several other micromodifications of the Folin-Wu method for blood sugar have been published. Similar methods have been described by Pollock and McEllroy,[5] Baumann and Isaacson,[6] Foster,[7] Kramer and Gittleman,[8] and Calvert.[9] The chief claim that we make for this method in comparison is that it employs, we believe, a more satisfactory method of collecting the blood, and provides for its preservation. Furthermore, it may be noted that this method departs very little from the regular Folin-Wu method. The use of small serologic tubes, in place of the Folin-Wu sugar tubes for the reduction, and color development, is practically the only departure, since the change in the preparation of the protein-free filtrate (Haden's modification) is made optional. The error from reoxidation on account of the change in tubes appears to be negligible, however, as results obtained by the micromethod have been more often high than low.

In order to show the practical value of the method, two blood sugar curves are reproduced in the accompanying chart. The determinations from which these curves were constructed were made by this method. One is a curve showing the effect on the blood of a normal person of taking a large amount of sugar; the other showing the effect of insulin administration on the blood of a diabetic patient.

CONCLUSION

The simple and accurate micromethod for the determination of blood sugar, using only 0.1 c.c. of blood, with a new method of collecting the blood, which has been described, is recommended for routine examinations when only small amounts of blood can be obtained, as in the case of babies and small children, or for the study of blood sugar curves of adults from whom samples must be taken at short intervals.[10]

5. Pollock, H. O., and McEllroy, W. S.: A Micro Method for the Determination of Sugar in Small Amounts of Blood, Am. J. M. Sc. **163**: 571 (April) 1922.
6. Baumann, E. J., and Isaacson, R. L.: An Adaptation of the Folin-Wu Blood Sugar Method Applicable to Small Amounts of Blood, J. Lab. & Clin. Med. **7**: 357 (March) 1922.
7. Foster, G. L.: Studies on Carbohydrate Metabolism, J. Biol. Chem. **55**: 291 (Feb.) 1923.
8. Kramer, Benjamin; and Gittleman, I. F.: Technic for Quantitative Estimation of Sugar in Very Small Amounts of Blood, J. A. M. A. **81**: 1171 (Oct. 6) 1923.
9. Calvert, E. G. B.: Estimation of Sugar in the Blood, Biochem. J. **17**: 117 (No. 1) 1923.

10. Since this paper was submitted for publication, a new method of preserving blood specimens has been described by F. V. Sander (Preservation of Blood for Chemical Analysis, J. Biol. Chem. **58**: 1 (Nov. 1923). The preservative described is a mixture of ten parts of sodium fluorid and one part of thymol. This mixture has been tested and found to be very efficient as a sugar preservative. Since it is an anticoagulant as well, its use is to be recommended in this method. Four or five drops of blood is collected in a vial containing 2 or 3 mg. of the sodium fluorid-thymol mixture, stirred carefully with a small glass rod, and tightly stoppered.

THE DIAGNOSIS OF CONGENITAL OBSTRUCTION OF THE DUODENUM

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In 1922, I[1] reported a case of congenital obstruction of the duodenum and gave a fairly complete discussion of the literature. Since that time I have had the opportunity of seeing two similar cases. In reporting these, I would call attention to a simple diagnostic procedure that I have found of help, and also to the technic of fluoroscopy and picture taking, as they may be confusing.

REPORT OF CASES

CASE 1.—J. C. H., a boy, aged 3 days, was brought to the hospital because of obstinate vomiting. The infant weighed at birth, 4 pounds, 9 ounces (2 kg.). Vomiting was marked on the first day of life. The infant was put to the breast and nursed well. On the second day he was given an enema, which was followed by the passage of normal meconium. Each day he vomited frequently, the nurse stating that the stomach contents "just poured out" and noting that he vomited far more than the amount of liquid given. The vomitus was black.

Examination disclosed an extremely toxic, feeble, premature infant, markedly jaundiced. The fontanels were depressed; all the cranial sutures were open; the mucous membranes

1. Schroder, C. H.: Congenital Obstruction of the Duodenum, J. A. M. A. **78**: 1039 (April 8) 1922.

were yellow; the tongue was dry; the pupils were contracted. The breathing was shallow, but the heart sounds were distinct and normal. The abdomen was not distended, and examination was not resisted. No tumor in the region of the pylorus was felt. No peristaltic waves were noted. There was a boggy fulness in the right iliac region. The umbilicus and the extremities were normal. The temperature was 102.

The excessive bilious vomiting suggested a duodenal obstruction. The nurse was instructed to give water and mother's milk by spoon, and atropin was ordered before feeding. Glucose solution was ordered by bowel. The poor condition of the infant precluded surgery.

On the fifth day, vomiting continued. The jaundice was even more intense. While the infant was being examined, copious amounts of black fluid, containing bile and blood, ran from the nose and mouth. The stomach was washed clean, and a catheter was pushed without much difficulty into the duodenum. This procedure was followed with a gush of the same dark fluid previously obtained.

Necropsy showed that the liver was markedly enlarged. The right lobe had dropped down and rested on the iliac crest, forming the boggy mass felt in the physical examination. The pylorus was easily patent. The duodenum was strikingly ballooned out and about one-third the size of the stomach. The small intestine was collapsed. The stomach, duodenum, gallbladder and part of the small intestine were removed. There was a complete atresia of the intestine, beginning at about the juncture of the second and third part of the duodenum. A probe, passed from the jejunum, stopped abruptly where the head of the pancreas enfolds the bowel. The gallbladder was distended with bile. On milking it the bile passed readily into the duodenum.

CASE 2.—L., a boy, born Oct. 20, 1923, with Dr. Hastings in attendance, was poorly nourished, weighing 5 pounds, 12 ounces (2.6 kg.), was cyanotic, and artificial respiration was required. Vomitus of a greenish fluid was noted a few hours after birth. During the first twenty-four hours, no meconium was passed and no urine was voided. The breast was offered after twenty-four hours, but refused. With urging, some colostrum was swallowed and some water taken, but the vomiting became more frequent and was rather forcible in character. October 22, it was noted that the abdomen was markedly distended. I was then called in consultation. The condition of the baby was still fairly good. It had lost a few ounces. No nourishment was retained by mouth; some carbohydrate had been given by bowel. The child was pale and rather yellowish. The heart and lungs were normal, and the abdomen presented no palpable findings. No pyloric tumor could be felt, and no peristaltic waves were seen.

Breast milk was given by tube. A catheter was passed without difficulty. Shortly afterward, copious vomiting recurred. However, the feeding by gavage was continued during the day. Atropin was given by mouth, and glucose solution by rectum.

The following day there was no improvement. Suspecting a duodenal obstruction, we passed a catheter (13 F.) and thoroughly washed the stomach. After this procedure, with only slight difficulty, the tube was pushed through the pylorus into the duodenum, when there came a copious gush of greenish fluid. The test showed bile.

A feeding of barium and breast milk was then given, and the baby examined by fluoroscope while lying on its back. The baby was observed at intervals for half an hour, but apparently nothing left the stomach. A picture showed the mixture apparently confined to the stomach. An hour later no change could be demonstrated. However, on change of position, that is, on turning the baby on the abdomen, it was soon seen that both stomach and duodenum were filled with the mixture, the duodenum having been concealed in the former position. With some difficulty, we obtained a picture in this position, demonstrating the condition. An hour later, it was shown that the jejunum was still empty.

The baby was put on the operating table the same evening, and under ether anesthesia, a rapid posterior gastroenterostomy was performed by Dr. E. E. Webber. The whole operation lasted thirty-five minutes. It was confirmed that the duodenum at the attached end was reduced to a mere cord.

The operation was well tolerated, and the baby left the table in good condition. After about six hours, however, it became cyanotic, vomited a little bloody material, and succumbed.

COMMENT

First, when a new-born baby has copious bilious vomiting, the condition should be suspected. A very simple procedure will establish the diagnosis and at the same time serve to rule out a pyloric stenosis, which is always first thought of. This consists in passing a small catheter and thoroughly washing the stomach until the fluid returns clear. Following this, with a little patience, the tube is pushed through the pylorus into the duodenum, when, if we are dealing with an obstruction of the organ, a characteristic gush of bile-stained fluid will be obtained. The mere passage of the tube would rule out a pyloric stenosis while, in this condition, the gush of fluid would not occur. In a duodenal obstruction, the pylorus is unusually patent.

Secondly, confirmation by roentgen-ray examination should not be omitted. It must be remembered, however, that with the baby lying on its back, the duodenum may be obscured. A more satisfactory picture will be obtained by turning the infant on its stomach. The upright position also can be used.

A NEW TEST FOR BILE PIGMENTS IN URINE, BILE AND BLOOD SERUM *

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While investigating the relation of bile pigments and metabolism in dogs with complete obstructive jaundice, or with biliary exclusion in which the bile was eliminated through the urine by means of a cholecystonephrostomy, we examined the urines as a routine for evidences of intestinal putrefaction as demonstrated by the test for indican. Curiously enough, we rarely found the indican test positive, but instead observed that the urine became deep green in every instance. At first the significance of this was not apparent; but later, on reviewing the phenomenon, we became impressed with the regularity and delicacy of this reaction whenever bile pigment was present.

The test for indican employed was the Obermayer test, which was performed by mixing equal parts of Obermayer's reagent with urine. Then from 2 to 3 c.c. of chloroform was added and thoroughly shaken. A positive test was indicated by the chloroform taking the blue color of the indigo. The Obermayer reagent is prepared by adding 3 gm. of ferric chlorid to 1 liter of concentrated hydrochloric acid specific gravity, 1.19.

It was found that all urines containing bile pigments when treated with Obermayer's reagent became a deep greenish blue at once. This color was not extracted by the chloroform, and therefore could not have been due to indican. Many urines from normal dogs did not give this reaction.

The test was then performed on many specimens of urine obtained from patients in the wards of the New Haven Hospital, and in no case was it positive except when bile pigments were present. None of the drugs used in medication were found to interfere with the test. To a series of urine specimens that were negative for this test, some urine containing bile pigments was added and the test repeated; they then became positive.

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To apply the test to a specimen of urine, 0.5 c.c. of Obermayer's reagent is added to 5 c.c. of urine. If bile pigment is present, the color will appear at once as a deep green. If there is only a faint trace, the color will appear after standing a few minutes in warm water. In fact, the Obermayer indican test and this test can be performed in the same test tube, for the indigo of the former is taken up by the chloroform.

Bile itself also was tested in this manner. Unless diluted, the color reaction becomes a very dark green. If it is first diluted to 100 c.c and then 1 c.c. of this dilution to 10 c.c. and the test applied, the reaction is immediate.

Serums that were collected for the purpose of determining the icteric index, as described by Stetten,[1] and for the Van den Bergh procedure,[2] were examined in the following manner:

A few drops of Obermayer's reagent were added to the alcoholic filtrate of the serums, and a clear green appeared, the intensity of which depended on the amount of pigment present.

For the collection of bile pigment in serum, 4 c.c. of 95 per cent. alcohol is added to 2 c.c. of serum to precipitate the proteins, and the mixture is centrifugalized. The clear supernatant fluid is withdrawn, and 0.5 c.c. of Obermayer's reagent is added. The green will appear after a few seconds, depending on the concentration of bile pigment present.

In order to determine which of the commoner bile substances gave this reaction, the various constituents of bile were tested separately, and it was found that bilirubin alone produced the color with this reagent. The principle of the reaction probably depends on the conversion of bilirubin to biliverdin by the oxidative action of Obermayer's reagent.

While this paper was being prepared, it was found that Sabatini [3] made use of this principle by means of another oxidative substance, sodium nitrite, in the presence of hydrochloric acid.

Experiments have been performed in order to ascertain the delicacy of the test. A specimen of pure bilirubin weighing 10 mg. was added to 10 c.c. of a chloroform and alcohol mixture so that 1 c.c. contained 1 mg. Dilutions were made up to 0.000033 gm. per cubic centimeter (to each dilution specimen, 0.5 c.c. of Obermayer's reagent was added). At these extreme dilutions it is best to allow the specimen to stand in the dark overnight. Comparative check readings were done with the Gmelin and Rosenbach test, and it was found that these became negative long before the reaction with Obermayer's reagent disappeared.

SUMMARY

A new test, which makes use of the color change produced by the conversion of bilirubin to biliverdin by means of the Obermayer reagent, is immediate in its response and more delicate than the Gmelin and Rosenbach reactions.

1. Stetten, De Witt: Ann. Surg. **76**: 191 (Aug.) 1922.
2. McNee, J. W.: Quart. J. Med. **16**: 390 (July) 1923.
3. Sabatini, G.: Policlinico, Rome **30**: 681 (May 28) 1923.

Lines of Health Legislation.—There are three lines of health legislation where all the skill of a public health worker as an educator is demanded for success. First, when it is proposed to use the power of taxation in forwarding health work; second, when it is proposed to establish a new thought in public health policy; and third, when it is planned to turn the health policy of the government in a new direction.—R. G. Paterson: *Hosp. Soc. Serv.* **9**:20 (Jan.) 1924.

POSSIBLE ERRORS IN THE DIAGNOSIS OF RENAL TUBERCULOSIS *

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Renal tuberculosis is recognized clinically without much difficulty when the usual clinical data are present. Unfortunately, however, the diagnosis of the disease is frequently obscured, either by the absence of any clinical data indicative of involvement of the urinary tract, or by the presence of data that are suggestive of conditions other than tuberculosis. The number of cases of renal tuberculosis with atypical symptoms in which the diagnosis was made in the course of routine clinical examination is increasing with the development in accuracy of clinical diagnosis. On the other hand, the existence of renal tuberculosis is undoubtedly often overlooked, in spite of careful clinical examination.

RELATIVE IMMUNITY

The degree of severity of subjective symptoms resulting from renal tuberculosis is largely dependent on the patient's resistance. Patients are observed who have such a high degree of resistance that an advanced tuberculous process may be present in the kidney without causing definite inflammation or ulceration in either the bladder or the ureter. In such cases none of the usual symptoms, such as dysuria, pain referred to the renal area, fever or pyuria, are present. The symptoms seldom are pronounced, and may consist of an occasional dull ache referred to the affected kidney, slight temporary urinary frequency, evidence of tuberculosis in the genitalia, or moderate loss in weight. The condition may well be termed "silent" renal tuberculosis. On cystoscopic examination, the bladder may either be normal, or only slightly inflamed in a few scattered areas. The urine catheterized from both kidneys may be normal, or that from the affected kidney may contain at most from one to ten pus cells to the field. On subsequent examination, the specimens collected from either kidney may not contain pus. When the sediment is stained for acid-fast bacilli, it may be either negative, or positive in but one of numerous specimens. Guinea-pig inoculations, which should always be made in such cases, may also be positive in but one of many inoculations. If guinea-pig inoculations from the urine of one kidney are repeatedly positive, while inoculations from the other kidney are persistently negative, the presumptive diagnosis of unilateral renal tuberculosis must be made in spite of the absence of any other clinical data.

The extent of the renal lesion found at operation in cases in which there had previously been little or no clinical evidence of the disease is often astounding. Recently a patient was observed whose only symptom was a dull ache referred to the right lumbar area. On cystoscopic examination the bladder was found to be normal, and catheterized specimens from the infected kidney were negative or contained but one or two pus cells to a field. Acid-fast bacilli were found in the urine only after repeated examination. At operation, the diseased area was found to involve a large portion of the upper pole of the kidney. The paucity of clinical and cystoscopic data was explained by the fact that the process was circumscribed by a fibrous capsule.

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PATHOLOGY

Tuberculous lesions found in the kidney when the clinical data indicated an increased degree of resistance to urinary tuberculosis consisted of: (1) single areas of caseation and necrosis of variable extent, although generally small, surrounded by a compact, localized capsule of fibrosis and an outer zone of lymphocytic infiltration; (2) multiple, small, localized areas of moderately advanced caseation surrounded by extensive fibrosis similar to that occurring only in cases of extreme tuberculous destruction of the kidney, and (3) numerous minute, scattered, well isolated foci of infection without gross caseation and suggestive of miliary tuberculosis. In this type of infection there was, generally, active tuberculosis in some other part of the body.

The fibrosis and the isolation of the tuberculous lesions to limited areas in the kidney in certain cases are due, evidently, to the patient's high resistance to the bacillus of tuberculosis. In many cases, however, the fibrosis and the obliteration of infected areas are merely an indication of the length of duration of the lesion; not infrequently in almost completely destroyed kidneys, the caseation and destroyed portions are isolated by heavy bands of fibrosis and beginning hyalinization. In these cases the pelvis and ureter were not thickened and edematous, as is usual in renal tuberculosis, and in several instances they appeared to be almost normal.

CHRONIC BILATERAL TUBERCULOSIS

Chronic, bilateral renal tuberculosis, although usually distinguished from bilateral pyelonephritis without great difficulty, may be difficult to recognize in certain instances, because of the clinical data. The clinical course is often surprisingly long; patients are observed whose symptoms have existed from ten to twenty years. The symptoms may consist of a moderate degree of irritability of the bladder, and an occasional dull ache referred to either renal area. At irregular intervals in certain cases there are acute exacerbations, marked by malaise and fever for several days. On cystoscopic examination, the appearance of the bladder may not differ from the ordinary areal cystitis; catheterized specimens from either kidney may contain an occasional pus cell or be quite normal; and the bilateral renal functional tests are often normal and equal. Pyelography may demonstrate a moderate degree of inflammatory dilatation like that observed in chronic pyelonephritis. Often, however, evidence of cortical necrosis confined to one or more calices will reveal tuberculous etiology. In several of these cases, cultures made from the urine from the kidney showed the presence of colon bacilli, which is particularly misleading, since the bacteria of secondary infection are not often found in the cultures from a tuberculous kidney. Microscopic examinations and guinea-pig inoculations with the urine obtained from either kidney may be negative. However, if repeated attempts are made to stain the catheterized urine, an occasional acid-fast bacillus may be demonstrated, although this may necessitate the examination of many slides. In order to exclude the possibility of tuberculosis, it also may be necessary to inoculate guinea-pigs repeatedly.

CYSTOSCOPIC DIFFICULTIES

Deformity of the bladder, and the pathologic changes in the mucosa in cases of renal tuberculosis frequently make the cystoscopic technic more difficult than with any other lesions of the urinary tract. In spite of the progressive improvement in our cystoscopic technic, the great aid offered by sacral anesthesia, and the use of indigocarmin, cystography, and so forth, cystoscopic technic occasionally fails in the identification or localization of the disease. A common source of error is caused by an inflammatory proliferation of the mucosa or granuloma, which may be so extensive as to simulate epithelioma very closely. It is not unusual to observe a patient with a persisting suprapubic sinus, on whom recent suprapubic cystostomy has been performed by the surgeon who explored the bladder and found what he believed to be extensive carcinoma of the bladder. The proliferation is usually around the infected ureteral orifice, although in many instances it extends across the trigon, and may invade other portions of the bladder. It often resembles epithelioma so closely in its papillomatous nature and tendency to bleeding that the confusion might be justified. However, the two conditions can usually be accurately differentiated by specimens removed for microscopic examination, and by the fact that overdistention of the bladder will usually flatten the tuberculous granuloma as a tumor would not. If the granuloma is around the ureteral orifice, the latter may be so obscured as to prevent inspection or catheterization, and thus the real nature of the lesion would be easily overlooked.

The ease with which a contracted, tuberculous bladder may be perforated in the course of cystoscopic examination is not generally appreciated. It is probable that this accident occurs much more frequently than is reported in the literature. The introduction of the cystoscope may also be rendered difficult by sacculation of the prostatic urethra, which may be so dilated as to resemble the bladder itself.

STRICTURE OF THE URETER

Stricture of the lower ureter in cases of renal tuberculosis may cause symptoms that disguise the nature of the lesion. Instead of the usual symptoms of dysuria and frequent urination, renal pain may be the only symptom. The urine often is only slightly infected, and the bladder but slightly involved. In the absence of evidence of infection in the catheterized specimens from the ureter, or when the urogram demonstrates the presence of hydronephrosis, the cause of the tuberculosis may be easily overlooked. Ureteral lithiasis, operative trauma and secondary neoplastic involvement are the most common forms of unilateral obstruction and can usually be identified. Stricture of the ureter resulting from chronic bilateral pyelonephritis is differentiated by the fact that the renal infection is usually bilateral, although the occasional case of unilateral pyelonephritis may be confusing. Pyelography is often valuable in differential diagnosis, and if there is evidence of typical necrosis in the pelvic outline, the identity of the tuberculous lesion can be definitely established. In general, it may be said that every stricture of the ureter with unilateral renal infection should be regarded as indicative of renal tuberculosis until it is definitely excluded by repeated microscopic examinations and guinea-pig inoculations.

ROENTGENOGRAPHIC EVIDENCE

Another possible source of error is in the interpretation of the renal roentgenogram. Shadows caused by renal tuberculosis may be observed in the roentgenogram in approximately 25 per cent. of cases, and they are usually identified by (1) irregularity in outline, (2) variability in density of the shadows, (3) small shadows, usually multiple or grouped, and (4) large shadows outlining the renal lobulation or the entire

kidney. Their resemblance to shadows caused by lithiasis is occasionally such that it is difficult to differentiate the two conditions. Without cystoscopic and pyelographic data, it is occasionally impossible to determine whether the shadows in the renal area are caused by tuberculosis or lithiasis. Even these data may not be sufficient to identify them, and if data from guinea-pig inoculation are not available, surgical exploration may be necessary.

POSTOPERATIVE DATA

A review of postoperative statistics made by various authorities in cases of renal tuberculosis, including a recent review of a series of patients at the Mayo Clinic, demonstrates the fact that the late mortality is greatest during the first year or two following operation. Complete postoperative data were obtained in 611 of the 847 patients operated on at the Mayo Clinic for unilateral tuberculosis up to Jan. 1, 1923. One hundred and ninety-one of these patients were reported dead; sixty-five (34 per cent.) died during the first year after operation, and forty-three (43.4 per cent.) during the second to the fifth year. It is generally agreed that factors other than possible injury resulting from the operation cause this comparatively heavy mortality during the first few years. The cause of death was ascertained with comparative accuracy in eighty-seven instances; twenty-five of the deaths were from disease in the opposite kidney.

Since chronic renal infection, in the majority of cases, is bilateral, it would be logical to assume that tuberculous renal infection is also bilateral. However, clinical experience has demonstrated that the renal lesion is unilateral in a large number of cases. The question arises whether the gross evidence obtained by the usual cystoscopic examination and ureteral catheterization is sufficient to prove that the disease is unilateral. In order to decide this, we made guinea-pig inoculations with urine from the supposedly healthy kidney in a series of twenty-two patients with apparently unilateral tuberculosis. The results were positive for tuberculosis in seven, and negative in fifteen. In every case two or more guinea-pigs were injected, so that the results may be regarded as fairly accurate.

THE CLINICAL SIGNIFICANCE OF A FEW PUS CELLS

Microscopic examination of the catheterized specimen from the kidney in the patients for whom the guinea-pig inoculations were positive revealed only an occasional pus cell in every case but one. Among the fifteen patients for whom the guinea-pig inoculations from the noninfected kidney were negative, the catheterized urine from this kidney contained one or two pus cells to a field in seven cases, and in two cases, four pus cells. The discovery of one or two pus cells in the specimen obtained from the kidney by means of ureteral catheters is of questionable importance in the diagnosis of tuberculosis. It is well known that, in many cases, catheterized urine contains a few red blood cells due to trauma, and in every group of red blood cells, an occasional white blood cell will be found. Therefore, in a field containing from five to twenty red blood cells, there would be several white blood cells, which might easily be interpreted as pus cells. However, in cases in which the ureteral specimen contains more than two or three pus cells to a field, and particularly if there are few or no red blood cells, the clinical value of the finding is increased, and, if indicated, the test should be repeated.

VALUE OF FUNCTIONAL TESTS

In cases in which the existence of bilateral disease is in doubt, renal functional tests, unfortunately, have proved to be of little practical value. Both excretory and retention tests are usually subnormal if the disease is advanced in both kidneys. If, however, there is but little evidence of disease in one kidney, even though the other kidney is largely functionless, the functional test usually remains normal; therefore, a normal functional test does not exclude bilateral disease. Occasionally, as Caulk has suggested, the retention tests are somewhat higher than normal in cases in which the excretory tests remain normal. It is of interest that, while at the time of the clinical examination the functional tests are normal, after the removal of the badly diseased kidney, the supposedly normal kidney may reveal its involvement by inability to withstand the stress of operation and additional burden. In such cases we have repeatedly observed the blood urea to rise as high as 200 or 300 and remain so for several weeks after operation. It is true that such an increase is not always indicative of tuberculosis in the supposedly normal kidney, but it demonstrates at least that the nephritis which had previously been observed still exists. The differential functional tests may also fail to indicate the presence of disease. We have repeatedly observed a normal phenolsulphonephthalein excretion from a kidney which, on subsequent removal, presented considerable involvement. In such cases the lesion was well encapsulated, and was limited in extent. In cases in which the infection was diffuse, the reduction of function was necessarily marked. A marked difference in the phenolsulphonephthalein return from either kidney is of value in the differentiation of pyelonephritis, since in chronic bilateral pyelonephritis there is seldom any marked difference in the function of the two kidneys.

GUINEA-PIG INOCULATIONS

Before drawing conclusions in regard to the existence of tuberculosis in the other kidney, it would be well to consider the value of the guinea-pig inoculation in this connection. Recent articles by Beer, Hyman and Mann have called attention to the fact that, in such guinea-pig inoculations, there may be considerable error; in their experience, as high as 36 per cent. These authors deserve much credit for calling our attention to the fact that the method, which had been generally regarded as infallible, might lead to an erroneous diagnosis unless every technical detail was carefully checked. They believe that possibly a positive guinea-pig inoculation may be caused by the bacilli of tuberculosis which have been picked up by the ureteral catheter in transit through the bladder or diseased lower ureter, and obtained from the upper ureter or renal pelvis as the result of ureteral reflux; or through "excretory tubercle bacilluria." Furthermore, they believe that the bacilli of tuberculosis in the bladder may have their origin in tuberculosis of the genitalia, and that in such instances, even though the guinea-pigs inoculated with the catheterized renal urine become infected, the kidney itself may not be infected. They support these contentions by the fact that, in five patients for whom the guinea-pig inoculations of the supposedly noninfected kidney were positive, four are now alive and well, and without any clinical evidence of renal tuberculosis.

It has been our experience that with proper safeguards, and when controlled by experienced technicians, the percentage of error with guinea-pig inoculation is not great, and that as an aid in the diagnosis of doubtful

renal tuberculosis the method is invaluable. It is true that a negative guinea-pig inoculation does not always exclude tuberculosis; nevertheless, when the test has been repeated, and the possibility of occlusion of the ureter has been excluded, it is well nigh infallible. If the report is positive, the various possibilities of contamination must be carefully considered.

It seems questionable whether the possibility of contamination of the ureteral specimen from the bacillus of tuberculosis in the bladder can be of any serious significance. The constant irrigation which is possible with modern irrigating cystoscopes should render negligible the chances for contamination of the ureteral catheter in transit through the bladder. Furthermore, plugging the distal end of the ureteral catheter and introducing it as far as the renal pelvis in securing specimens of urine reduces the likelihood of carrying organisms to the kidney. On reviewing our records of the patients operated on for unilateral renal tuberculosis, in many of whom a positive guinea-pig inoculation was the factor which determined operation, the kidney was found to be normal at operation in but one instance. The possibility of tubercle bacilluria which Beer has termed "excretory tubercle bacilluria," occurring in the presence of active tuberculosis in other organs, must be considered. That this may be a factor in causing an erroneous diagnosis of renal tuberculosis remains to be proved. Our records do not show a case in which this occurred. The possibility of obtaining the bacillus of tuberculosis in the catheterized urine from a normal kidney as a result of ureteral reflux from the bladder should be recognized, although it has not proved to be a frequent source of error in diagnosis.

BILATERAL RENAL INVOLVEMENT

The series of patients with guinea-pig inoculations made from the urine of the supposedly healthy kidney which we report is too small, and the time since inoculation too short, to permit definite statements in regard to the relative occurrence of bilateral renal tuberculosis. Nevertheless, it would be logical to conclude that the positive results are indicative of bilateral renal tuberculosis in most instances, and explain, in part at least, the large percentage of patients who die within a year or two after nephrectomy. Furthermore, it is evident that bilateral renal tuberculosis occurs more commonly than the usual cystoscopic data would lead us to believe.

If there is definite tuberculosis in one kidney, and a positive guinea-pig inoculation or an occasional pus cell in the other, the question arises as to the advisability of operation. It would hardly be logical to assume the position taken by Casper, who refused to remove a tuberculous kidney when the guinea-pig inoculation made from the urine of the other supposedly healthy kidney was positive. It is well known that bilateral renal tuberculosis is not, as a rule, benefited by surgical treatment. This is true if both kidneys are equally involved, or if the disease is extensive in the better of the two kidneys. However, in case there is advanced tuberculosis in one kidney and only limited involvement in the other, removal of the kidney with advanced disease is often followed by a period of marked clinical improvement. Therefore, when the diagnosis of definite tuberculosis has been made in one kidney, even though the guinea-pig inoculation of the urine from the opposite kidney is positive, and there is an occasional pus cell in the urine, if the function of that kidney has been demonstrated to be normal, removal of the definitely diseased kidney is justifiable.

SPONTANEOUS RECOVERY

It is generally accepted that tuberculous infection in the kidney with definite evidence of tissue destruction will rarely, if ever, recover spontaneously. No pathologist has ever demonstrated a healed tuberculous lesion in the kidney. However, it would seem possible that, in the case of a sudden acute infection of the kidney confined to a number of minute areas, spontaneous recovery might occasionally occur. It is conceivable that these infected areas may be characterized by hyperemia and limited round-cell infiltration, without actual destruction of renal tissue. If the patient has a high degree of immunity, it is probable that the infected areas disappear without leaving any visible trace of the lesion. Although it is true that most of the cases of symptomatic recovery are explained by occlusion of the affected ureter, yet we have, in recent years, observed several patients in whom true spontaneous recovery has evidently occurred. The onset was sudden, with symptoms suggestive of acute pyelonephritis. Microscopic examination of the urine revealed countless acid-fast bacilli, and the guinea-pig inoculations were positive. The course of the infection was similar to pyelonephritis, and after several weeks no evidence of the infection remained. Repeated subsequent examinations of the urine for the bacillus of tuberculosis and the clinical and cystoscopic data have remained negative over a period of many years. However, it should be emphasized that spontaneous recovery is exceedingly rare, and that operation should not be deferred in the presence of even a few persistent pus cells or bacilli of tuberculosis in the urine, any evidence of infection in the bladder, or any subjective symptoms referable to either kidney.

CONCLUSIONS

1. The diagnosis of chronic tuberculosis, unilateral or bilateral, may be exceedingly difficult.

2. With the patient's increased resistance, the usual urinary symptoms may be absent and the urine normal save for an occasional pus cell.

3. Repeated examinations of the urine for the bacillus of tuberculosis, and guinea-pig inoculations at variable intervals, may be the only method of establishing the diagnosis.

4. When repeated guinea-pig inoculations with the urine from one kidney are positive, even though no other clinical data are present, the inoculation results can usually be regarded as sufficient to warrant operation.

5. The renal lesion in such cases is characterized by encapsulation of the infected renal areas.

6. The number of pus cells found in the microscopic examination of the catheterized urine is not at all indicative of the extent of the lesion.

7. The finding of one or two pus cells in the catheterized urine from the supposedly healthy kidney is not of much practical significance.

8. Confusion of vesical granuloma accompanying renal tuberculosis with vesical neoplasm is not uncommon, and differentiation is best made by microscopic examination.

9. With ureteral stricture, and particularly with secondary infection, the clinical data usually observed with renal tuberculosis may be obscured.

10. Bilateral tuberculosis occurs more commonly than the usual clinical data indicate.

11. In cases of bilateral renal tuberculosis in which only one kidney is markedly diseased, removal of this kidney is justified.

12. Tuberculosis in the supposedly healthy kidney is probably a common cause of death within a year or two after nephrectomy.

13. Spontaneous recovery from acute renal tuberculosis must be regarded as possible in exceptional instances.

CORONARY THROMBOSIS SIMULATING PERFORATED PEPTIC ULCER

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In presenting this case it is not my aim merely to add one more description of coronary thrombosis to medical literature, but to emphasize further the fact that coronary thrombosis may closely simulate peptic ulcer. Many authors have stated that, not infrequently, coronary thrombosis may be diagnosed as perforated peptic ulcer, gallstones or pancreatitis. There are relatively few instances on record in which these observations have been borne out by case records. I have been unable to find a single case report in which the necropsy revealed coronary pathologic changes when the description given seemed to be clinically typical of perforated peptic ulcer.

One of the first and most complete descriptions of coronary thrombosis is that presented by Herrick.[1] He states that the pain occurring during the anginal attacks was usually substernal and radiating to the neck and down the arms, but that it was frequently located in the epigastrium and did not radiate. Nausea, vomiting and shock frequently developed and were often mistaken for pancreatitis, gallstones or ulcer.

Gorham[2] cites four cardinal symptoms or findings that are usually characteristic of coronary thrombosis: (1) pain as described by Herrick and others; (2) fever coming on twenty-four hours after the onset of the difficulty, and lasting four or five days, associated with mental clearness, but often with extreme restlessness (leukocytosis may or may not be present); (3) pericardial friction rub, frequently of light intensity, developing within the first few days, transitory, but often recurrent over a small area (this finding has been observed by others, but no special emphasis has been placed on it); (4) signs of pericardial decompensation of varying degree, arrhythmia, fibrillation, a falling blood pressure, and increase of cardiac dulness to the right; the disappearance of a systolic murmur before the attack or the appearance of a mitral murmur, signs of early pulmonary edema, albuminuria, and, in the later stages, generalized edema.

Paullin[3] describes the case of a man who had had anginal attacks for two years, and who was seen on one occasion when he had severe pain in the epigastrium, accompanied by muscle spasm over the entire left side. He gives this as a clinical picture of acute pancreatitis or acute perforating ulcer. The temperature was normal and the blood count was not recorded. In the description there is little on which to base a diagnosis of an acute abdominal condition.

Wearn[4] has recently reviewed the symptoms and signs in nineteen cases that later came to necropsy. In a recent article he has made a very thorough clinical and pathologic study of coronary disease. In the review of these cases, he brings out very clearly most of the physical signs, symptoms and laboratory findings that have been reported to date in thrombosis of the coronary.

The following is the review of a case of coronary thrombosis recently observed at the Mayo Clinic, in which the history and clinical findings closely simulated a case of perforated peptic ulcer.

REPORT OF CASE

History.—T. W. C., a man, aged 66, entered the hospital, Feb. 5, 1923, complaining of pain in the epigastrium and the lower half of the anterior chest wall, which had commenced about two hours after the evening meal, three days previous to hospitalization. Nausea and vomiting occurred intermittently the first night of the attack, with slight temporary relief. The second day he felt well except for burning in the epigastrium and residual soreness; but that evening, about 9 o'clock, he had a sudden attack of severe, lancinating pain in the epigastrium, which radiated through to the back and shoulder blades over the anterior chest wall and down both arms. He was unable to lie down, obtaining most relief from sitting up in bed, with his legs drawn up. He was nauseated during this attack, and two or three times vomited a small amount of gastric contents. The severe symptoms continued for about four hours, during which time three hypodermic injections of morphin were administered. The boring pain in the epigastrium and upper abdomen, radiating to the back and over the anterior chest wall, was continuous up to the time the patient entered the hospital.

Between the ages of 20 and 35, he gave a history of almost daily vomiting immediately after breakfast. He had no pain or distress during these spells; only a slight nausea. For the last thirty years, he had been troubled by water-brash about three times a week, with periods of a month or more intervening. This had often awakened him between 4 and 5 o'clock in the morning. For the last fifteen years, he has had frequent spells of a hungry sensation in the epigastrium, coming on about 10 a. m., and relieved by taking a small lunch. Constipation had been marked for the last ten years, requiring cathartics two or three times weekly. The cardiorespiratory, genito-urinary and nervous systems were normal.

Examination.—The heart sounds were normal, no arrhythmia or murmurs were noted, and no enlargement could be made out by percussion; the pulse rate was 100. The abdomen showed rigidity (3 on a scale of 4), especially in the upper quadrants, and there was considerable tenderness in the epigastrium. There was peripheral arteriosclerosis (3 on a scale of 4). The blood count showed: hemoglobin, 90; red blood cells, 5,000,000, and leukocytes, 22,400. Urinalysis revealed a trace of albumin, an occasional hyaline cast and a few pus cells. The Kolmer test was negative; blood urea was 39 mg. per hundred cubic centimeters; creatin was 1.5 mg. per hundred cubic centimeters; uric acid was 2.1 mg. per hundred cubic centimeters; Palmer test for hemoglobin was 103 mg. per hundred cubic centimeters, and the combined phenolsulphonephthalein test for kidney function was 40 mg. per hundred cubic centimeters.

Course.—February 5, the patient complained of pain in the epigastrium, and two hypodermic injections of morphin were given. All fluids were administered by rectum. The heart was examined with particular care, as angina pectoris was suspected, but nothing could be found.

February 6, the heart was fibrillating, the radial pulse was 80, the apical beat 100. The abdomen was still quite rigid and epigastric pain was present, but without radiation. A digitalis preparation was given at four hour intervals, and fluids were administered subcutaneously.

February 7, the upper abdomen was markedly rigid, and the white count was 24,400. The cardiac rhythm was normal, and the pulse ranged between 80 and 90. One of the consultants thought that he could detect a to and fro sound at the left sternal margin, which he interpreted as a pericardial rub, but other observers failed to corroborate this finding. In the

1. Herrick, J. B.: Thrombosis of the Coronary Arteries, J. A. M. A. **72**: 387 (Feb. 8) 1919.
2. Gorham, L. W.: Albany M. Ann. **41**: 109 (April) 1920.
3. Paullin, J. E.: Myocardial Infarct Following Coronary Sclerosis, M. Clin. N. Am. **1**: 1625 (May) 1918.
4. Wearn, J. T.: Thrombosis of the Coronary Arteries with Infarction of the Heart, Am. J. M. Sc. **165**: 251 (Feb.) 1923.

morning, the temperature was normal, but gradually rose to 101. In the afternoon the abdomen was not so rigid and the patient was subjectively better, but the heart again began to fibrillate.

February 8, the heart was regular, the temperature 99.5, and the pulse 88. The digitalis was discontinued, and small amounts of fluid were given by mouth. The abdomen was only slightly rigid, but quite marked tenderness persisted in the upper quadrants. The temperature rose to 100, and the pulse remained regular at 88. The white count had dropped to 14,600.

February 10, the temperature became normal and remained so. The patient continued to improve, and did not complain of pain or distress.

February 12, a modified ulcer diet was given and tolerated without distress. The abdomen remained moderately rigid and tender to pressure in the epigastrium.

From February 12 to 16, subjectively, the patient continued to improve, although tenderness and rigidity of the upper abdomen was still quite noticeable. The leukocyte count ranged between 14,000 and 16,000, the pulse from 70 to 88. The temperature was normal. The patient was confined to his bed, but felt that he was able to leave the hospital and resume his former work.

February 17, the patient had a sudden attack of severe aching pain over the precordium accompanied by dyspnea and cold perspiration lasting about twenty minutes. Physical examination during the attack revealed a condition of marked shock. The patient lay quietly in bed without visible dyspnea. The pulse was very rapid and barely palpable. The extremities, face and lips were blue and cold, and a cold sweat covered the body. The heart sounds were quite distinct, and suggested a gallop rhythm. Morphin and digitalis were administered, and in an hour the patient had completely recovered from the attack, and, except for residual weakness, felt quite well. Ten hours later, a similar attack occurred during which the patient died.

The diagnosis was that of angina due to an embolus or coronary thrombosis and a subacute perforation of a chronic ulcer.

Necropsy.—The abdominal cavity showed no evidence of acute peritonitis, but there were several fibrous adhesions in the lower portion.

The left pleural cavity contained 25 c.c. of clear, straw-colored fluid, and the right, a few adhesions.

The pericardial cavity was partially obliterated by a subacute, fibrous pericarditis with adhesions that could be broken down easily. It contained about 15 c.c. of a slightly cloudy fluid. At the apex of the left ventricle, there was extreme thinning of the walls with a mural thrombus softening in its center, and signs of fibrosis; this was the site of a beginning aneurysm, 4 cm. in diameter. The branch of the left coronary artery which leads down to this was partially obliterated by an old thrombus. Above the site of this thrombus, the circumference of the coronary measured 1 cm.; below, it measured 5 mm. The heart was hypertrophied (600 gm.), and dilatation was marked. The valves showed no gross change. The base of the aorta and the coronaries showed arteriosclerosis (2).

The liver weighed 2,350 gm., and showed congestion of the vessels. The parenchyma showed signs of fatty changes. The gallbladder contained a large stone, measuring 6 cm. and 3 cm. in diameter, which completely filled it. The bile ducts were dilated, but there was no obstruction. The gallbladder and ducts showed no evidence of recent inflammation.

The stomach showed no external signs of ulcer, and was free from adhesions. The duodenum had an old healed ulcer just below the pylorus, with two pits which simulated acute ulcers. Besides this ulcer, there was a small (2 mm.), superficial, acute gastric ulcer with hemorrhagic edges.

The aorta showed generalized arteriosclerosis with calcified plaques and several small ulcers at its bifurcation.

The anatomic diagnosis was: generalized arteriosclerosis; old thrombosis of the left coronary with myomalacia cordis; beginning aneurysmal formation with mural thrombosis of the left ventricle; hypertrophy of the heart (600 gm.) with dilatation and fatty changes; subacute pericarditis; old healed duodenal ulcer; chronic chylecystitis with cholelithiasis; passive congestion of liver, kidneys and ileum; small, superficial, acute gastric ulcer; old fibrous pleuritis, right; old fibrous peritonitis.

COMMENT

In view of the similarity to peptic ulcer in the history presented by this patient, and in view of the fact that peptic ulcer may produce angina-like pains, a diagnosis of perforated peptic ulcer seemed justified the day the patient was admitted. The rigid abdomen, the leukocytosis and the elevation of temperature seemed to corroborate the tentative diagnosis of ulcer. The heart tones were a little distant, though easily heard. The temperature, dyspnea and auricular fibrillation that occurred twenty-four hours after admission led us to suspect a coronary thrombosis. Unfortunately, it was impossible to obtain an electrocardiographic tracing. Coronary disease was not definitely diagnosed until the morning of the day of the patient's death. Five days after admission, the temperature became normal, and the leukocyte count was reduced from 22,400 to 14,600. The rigidity and tenderness of the abdomen largely subsided, and the symptoms practically disappeared. During the week that followed, the patient frequently stated that he felt perfectly normal and ready to return to work. Operation had been considered, but, owing to the attack of auricular fibrillation, the marked arteriosclerosis and the age of the patient, the idea was abandoned and the patient was continued on a medical regimen.

Recently I made a study of the symptomatology of a large series of peptic ulcer cases showing chronic perforations. Patients with this condition frequently have pains which radiate upward over the chest and occasionally down the arms and, not infrequently, are treated for a cardiac condition. In some cases, the symptoms are indistinguishable from those of angina pectoris.

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PHYSICAL FACTORS PERTAINING TO HAY-FEVER *

I. AMOUNT OF SEASONAL PRECIPITATION

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In a previous paper,[1] I reported the results of some hay-fever prophylactic work carried on during the year 1922 among male students of Cornell University having histories of hay-fever and giving positive cutaneous tests to pollens. There was a question whether the good results obtained were not due, to a great extent, to the very plentiful rainfall experienced in the summer of 1922. During the spring and summer of 1923, a number of the students treated in 1922 received their second series of prophylactic injections. I am now able to compare the amount of hay-fever relief obtained for the two years with the precipitation records for the corresponding years.

Since the university closes before the spring hay-fever season is concluded, and very few of the students are in Ithaca during the entire fall hay-fever season, it became necessary to secure the precipitation records for their home localities and places they visited during their

* From the Department of Hygiene and Preventive Medicine, Cornell University.

1. Gould, A. G.: Protein Sensitization, J. A. M. A. **80**: 394-397 (Feb. 10) 1923.

respective hay-fever seasons. This would have been impossible except for the courtesy of the officials of the United States Weather Bureau, who have very kindly supplied me with their "Climatological Data" for the various states involved in the study.

Referring to Table 1, it will be seen that the precipitations from May 15 to July 15, 1922, were in excess of the normal average precipitations for the respective states. Hay-fever sufferers know the value of a rainstorm for clearing and washing the air of pollen. Hence the comfort of hay-fever patients in 1922 should have been above the average. In other words, the patients would speak of it as a "light" year. This explains why the question whether the good results were not due to a great extent to the plentiful rainfall was raised. It will also be seen that the respective precipitations for 1923 were much less than for 1922, and in all cases considerably below the normal averages for the respective states.

TABLE 1.—*Comparison of Hay-Fever Relief in Two Successive Early Summers: First Season, Excessive Precipitation; Second, Deficient Precipitation*

Case	Percentage of Relief 1922	Percentage of Relief 1923	Precipitation, May 15 to July 15, 1922, Inches	Relation to Normal Precipitation	Precipitation, May 15 to July 15, 1923, Inches	Relation to Normal Precipitation
S 2	75	70	9.05	+1.53	3.68	−3.83
S 4	90	90*	9.06	+1.54	5.14	−2.06
S 5	75	50	9.06	+1.54	4.37	−2.83
S 6	75	50	8.79	+1.27	3.77	−3.74
S 11	70	50*	11.91	+4.44	3.38	−3.83
S 13	90	80	10.34	+2.09	3.83	−3.08
C 1	90	80	11.51	+3.95	5.33	−1.87
C 6	70	70	12.49	+4.54	4.44	−2.45
C 8	40	50	16.37	+8.66	4.54	−2.66

* Work exposed him unduly to pollens.

If the increased rainfall in May, June and July, 1922, accounted for the good results of the prophylactic inoculations in 1922, it would be expected that the decreased rainfall of the same months of 1923 would decrease the amounts of relief received during the season of 1923. It would appear that this has happened. Of the nine patients in the series, all except three failed to gain the relief experienced in the year previous. Two exceptions obtained the same amount of relief in spite of a decreased precipitation of 3 or more inches from the previous season, and one exception received more relief in spite of more than 11 inches decrease in rainfall.

TABLE 2.—*Comparison of Hay-Fever Relief in Two Successive Late Summers, Both Seasons Having Excessive Precipitations*

Case	Percentage of Relief 1922	Percentage of Relief 1923	Precipitation, Aug. 15 to Sept. 15, 1922, Inches	Relation to Normal Precipitation	Precipitation, Aug. 15 to Sept. 15, 1923, Inches	Relation to Normal Precipitation
F 2	85	75*	7.49	+2.25	5.83	+1.32
F 4	50	50	8.51	+3.27	5.48	+0.06
C 2	85	95	9.37	+4.13	5.85	+0.55
C 4	75	85	5.44	+0.30	6.74	+1.44
F 19	50	75	6.32	+1.08	5.33	+0.04
C 8	90	90	7.60	+1.79	6.97	+1.49

* Work exposed him unduly to pollens.

Referring to Table 2, it will be seen that these six patients with fall hay-fever held their own or improved. In both hay-fever seasons the rainfalls were above the averages, yet generally lower in 1923 than in 1922.

The eight patients of Table 3 experienced much less rainfall in August and September, 1923, than in the corresponding months of 1922, the rainfall in 1922 being above the average and in 1923 below the average. In spite of this, seven of the eight improved remarkably in the relief of their symptoms.

The four patients of Table 4 experienced each year a rainfall below the average, yet three of the four secured more relief from their preventive inoculations in 1923 than in 1922, and the fourth patient held his own.

The two patients of Table 5 had a diminished rainfall in 1922 and an excessive rainfall in 1923. They improved in their percentages of relief.

Taken as a whole, the relation of the rainfall to the spring cases (Table 1) is not the same as its relation to the fall cases (Tables 2, 3, 4 and 5).

TABLE 3.—*Comparison of Hay-Fever Relief in Two Successive Late Summers: First Season, Excessive Precipitation; Second, Deficient Precipitation*

Case	Percentage of Relief 1922	Percentage of Relief 1923	Precipitation, Aug. 15 to Sept. 15, 1922, Inches	Relation to Normal Precipitation	Precipitation, Aug. 15 to Sept. 15, 1923, Inches	Relation to Normal Precipitation
F 3	50	80	9.44	+4.20	2.62	−2.67
F 5	50	75	8.51	+3.27	3.32	−1.97
F 6	60	90	8.51	+3.27	3.32	−1.97
F 8	10	80	8.51	+3.27	2.16	−3.13
F 9	50	80	6.45	+1.13	4.40	−1.01
F 13	70	90	8.51	+3.27	3.70	−2.27
F 20	70	85	3.37	+1.29	5.02	−0.38
F 16	40	40	5.91	+0.67	3.48	−1.81

TABLE 4.—*Comparison of Hay-Fever Relief in Two Successive Late Summers, Both Seasons Having Deficient Precipitations*

Case	Percentage of Relief 1922	Percentage of Relief 1923	Precipitation, Aug. 15 to Sept. 15, 1922, Inches	Relation to Normal Precipitation	Precipitation, Aug. 15 to Sept. 15, 1923, Inches	Relation to Normal Precipitation
F 10	50	75	2.29	−3.13	2.63	−2.92
F 24	75	75	4.33	−0.86	3.71	−1.69
C 1	90	100	4.07	−1.58	3.29	−2.00
C 6	zero	80	4.25	−1.64	4.69	−1.85

TABLE 5.—*Comparison of Hay-Fever Relief in Two Successive Late Summers: First Season, Deficient Precipitation; Second, Excessive Precipitation*

Case	Percentage of Relief 1922	Percentage of Relief 1923	Precipitation, Aug. 15 to Sept. 15, 1922, Inches	Relation to Normal Precipitation	Precipitation, Aug. 15 to Sept. 15, 1923, Inches	Relation to Normal Precipitation
F 11	50	65	3.07	−2.28	7.04	+1.56
F 22	25	80	2.75	−2.49	6.15	+0.86

It has been written in various articles that the patients should receive more benefit during their second year of treatment than during their first. Presumably it has been thought that there is a cumulative immunity from season to season. My groups of fall cases might indicate such a supposition, but what of the group of spring cases which did not improve under the second series of injections?

I realize that my number of cases is too small to form a basis for drawing definite deductions or conclusions.

The frequency of the rainfall must be just as important as the amount of rainfall. I think that 2 inches of rain in a twenty-four hour period would not keep the air cleared as efficiently of pollen as 1 inch of rain in the twenty-four hours, followed by another inch twenty-four hours later. A sufficient amount of rain to

clear the air for one person might not sufficiently clear the air for another, because of the difference in the pollen thresholds of the two individuals.

The relationship of precipitation to pollen sensitization appears to me to be very complex, and possibly not a major factor in its relief.

It is my personal opinion that there are a great number of factors which have to do with the severity of hay-fever. Some of these undoubtedly are the amount and frequency of rainfall; the amount of growth of the plants responsible for the hay-fever, which is influenced by the amount and frequency of the rainfall, the temperature, and the amount of sunlight; the velocity of the wind; the amount of exposure to the pollen; the state of the anatomy of the nose, and the personal hygiene of the patient.

There may be some cumulative immunity from year to year, but I believe that its importance has been exaggerated.

PNEUMONIA SIMULATING APPENDICITIS IN CHILDREN *

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Some recent experiences in the Iowa State Soldiers' Orphans' Home Hospital have emphasized the necessity of keeping in mind the variations in the mode of onset and symptoms that may be exhibited by acute pneumonia. The possibility of its simulating acute appendicitis with the usual syndrome of vomiting, abdominal pain, rigidity and tenderness must be remembered.

The difficulties in diagnosis are enhanced in children because they usually do not note the sequence of symptoms, and often exaggerate or understate their severity. Children are often repressed during examination, and respond in the manner they consider is desired rather than in accord with the facts with respect to duration, extent or localization of symptoms. When the child is frightened and cries continuously, the subjective side of the picture is lacking entirely. Sometimes a hiatus in observation between matron, nurse and physician adds to the difficulty.

The importance of considering pneumonia as a possible factor in diagnosis when symptoms of appendicitis are present was shown by Adams and Berger,[1] who reported 145 cases of lobar pneumonia, of which twenty-five, or 17.6 per cent., were admitted to the hospital with a diagnosis of acute appendicitis. Hagaman [2] states that thoracic pain in childhood is almost always referred to the abdomen, and cautions that pneumonia of the base of the lung involving the diaphragm should always be excluded in an attack of abdominal pain, even though there is marked tenderness and muscular rigidity, especially if there is an increase in the respiratory rate.

What are the criteria that should be remembered when one is confronted with the responsibility of making a diagnosis and determining whether or not to operate under these circumstances? Harris [3] points out that a severe chill, a very high temperature and a high leukocyte count should make one stop, look and listen. He observes that one may experience a few chilly sensations in the acute onset of appendicitis, but that a frank shaking chill almost never occurs. Inability to get information on this point from the child or failure of observation by the matron or nurse may make this symptom of little value.

The temperature in pneumonia usually rises rapidly, reaching 103 or 104 in a few hours. In appendicitis the rise is gradual and seldom attains 103 or 104. It is a common observation that in a very fulminating serious attack the temperature may be no more than 99.5 or 100.

The leukocyte count [3] is usually moderate in appendicitis, especially in children, seldom being over 20,000, and is more often nearer 12,000 or 15,000. In the series of pneumonia cases mentioned, 90 per cent. gave a leukocyte count of more than 20,000; only 9.8 per cent. gave a count below 15,000. These authors [1] report forty-five cases of acute appendicitis in the same hospital, where 91.5 per cent. gave a leukocyte count below 15,000 and not one patient had a count over 20,000. A leukocyte count near or over 20,000 in a child, therefore, should make one think strongly of pneumonia.

The value of the symptoms pain, tenderness and muscular rigidity as aids in diagnosis depends on the age, intelligence and character of the child. Some little children give surprisingly great assistance by their bright responses, localization of pain, and reaction to pressure over the affected area. Others only add confusion to the investigation. One child whose case is reported here screamed as loudly when slight pressure was made on his knee as when his abdomen was touched. This reaction was of value, however, for it pointed the first suspicion at the reality of a pathologic condition in the abdomen and may be taken as an example of the devious methods that must be adopted in gleaning information from these little people in distress.

Roentgen-ray examination is of value in the differential diagnosis, and may disclose a small affected area of the lung or a central pneumonia giving few or no clinical signs. Even a generalized early involvement may be disclosed in a clear plate.[2]

REPORT OF CASES

CASE 1.—B. L., a girl, aged 10, was admitted to the Orphans' Home Hospital, March 8, 1923, at 9:30 a. m., with a complaint of pain in the lower abdomen and vomiting, symptoms having been present for two days. There was no cough. Her cheeks were slightly flushed, but there was no rapid or forceful breathing. The patient was listless and languid, but groaned occasionally, placing her hands over the abdomen. Respirations were 20; the pulse was 116; the temperature, 103.8. The pupils were equal and reacted to light. The throat, ears, nose and glandular areas were normal. The reflexes were normal. Examination of the heart and lungs was negative. There was general rigidity, moderate distention, and tenderness over the abdomen, the latter seemingly more pronounced in the right lower quadrant, but cooperation was unsatisfactory. Urine examination was negative; the leukocyte count, 36,000. With these findings, operation, which had been considered, was deferred. Because of the apparent stupor and listlessness, a spinal puncture was made which showed no increase in pressure and a normal cell count. The temperature rose to 104.6 by 8 p. m., and at 10:30 p. m. was 105.2 by rectum. The following day a few râles could be heard over the right lung, but were not heard at any subsequent examination, and signs of consolidation

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* Read before the State of Iowa Board of Control of State Institutions, Des Moines, Iowa, Dec. 4, 1923.

1. Adams, F. D., and Berger, B. J.: Differential Diagnosis of Lobar Pneumonia and Appendicitis in Children, J. A. M. A. 79: 1809 (Nov. 25) 1922.

2. Hagaman, G. K.: Pneumonia in Children, Minnesota Med. 6: 542 (Sept.) 1923.

3. Harris, M. L.: The Diagnosis of Some Surgical Conditions, J. Iowa State M. S. 13: 441 (Nov.) 1923.

were never present. The temperature dropped by crisis on the fifth day, and uneventful recovery ensued.

CASE 2.—R. R., a boy, aged 4, was admitted to the Orphans' Home Hospital, July 7, 1923, at 4 p. m., complaining of pain in the abdomen, headache, vomiting and frequent urination. The little patient lay with both hands pressed over the abdomen, and alternately groaned and cried with pain. General examination was negative. Careful examination of the lungs, with the possibility in mind of pneumonia producing the abdominal symptoms, revealed nothing. The abdomen was slightly distended and tympanitic. The slightest pressure anywhere evoked a shriek from the patient. The degree of rigidity was difficult to determine, and increase of tenderness in the right lower quadrant could not be made out with certainty. The first definite sign of value was elicited by pressure over the thigh, which brought forth the same outcry as abdominal pressure, demonstrating that considerable of the reaction was due to fright. Urine examination showed a number of pus cells and casts. The temperature was 102; the leukocyte count, 36,000. The throat culture was negative the next morning on examination. Repeated physical examinations were made at intervals. In consultation, operation was advised because of the chance of overlooking a fulminant appendix. In the meantime the temperature had crept up to 103, and at 1 a. m. proved to be 105.4 by rectum. Then the idea of operating was abandoned. At 8 a. m. the temperature was 104.6, and the leukocyte count 51,000. A mild cough had developed, but no clinical signs of pneumonia were present. On the third day, the temperature dropped to 99 and the patient recovered uneventfully. A few râles were present over the right lower lung about the fourth and fifth days, but no further signs were present at any time.

CASE 3.—C. R., a boy, aged 7, was admitted to the Orphans' Home Hospital, Friday, July 13, at 9 a. m., with a complaint that for two or three days he had had pain in the abdomen and some vomiting. He had played with the other children until sent to bed in his cottage by the matron. The child was languid and rather pale; the abdomen was slightly distended, rigid and tender, especially over the right lower side. Percussion revealed dulness in the right iliac fossa. The temperature was 101; respiration, 24; pulse, 118. The urine was normal. The leukocyte count was 15,950. Physical examination otherwise was negative. A diagnosis of ruptured appendix with peritonitis and localizing abscess was made. Operation was deferred for three days, when incision revealed a gangrenous, ruptured appendix with a fecalith which had been discharged from it lying free in the iliac fossa, and a large abscess extending across the midline to the left side of the abdomen. The temperature the morning of the operation was 100.6; leukocyte count, 20,500, and pulse, 96; respirations were 24. The child was quite ill for two weeks, but eventually made a good recovery.

SUMMARY

1. The acute onset of pneumonia with few or no clinical symptoms may simulate acute appendicitis, especially in children. Abdominal symptoms of pain, tenderness, rigidity and distention may be present.

2. Difficulties in diagnosis are multiplied because of the tender age, lack of intelligence, or fear on the part of the patients.

3. A severe chill at the onset, temperature over 102, and a leukocyte count near or over 20,000, should engender extreme caution and intensify efforts at differentiation. A careful urine examination should always be made.

Central Office Building.

Exchange for Scientific Works.—A Prussian library has set apart a room for an exchange of scientific works. A certificate for the value of each scientific work brought in is given the donor, who can take out other scientific works from that collection, to the amount specified on his certificate. No cash will be paid or received. The exchange is open only for three hours Saturday afternoons.

INSULIN TREATMENT OF THE TOXEMIC VOMITING OF PREGNANCY*

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I previously reported[1] a series of cases in which postoperative, nondiabetic acidosis was successfuliy treated with a combination of hypodermic injections of insulin and the intravenous administration of glucose solution. One of the statements in this article was that "an opportunity is awaited to use this method of treatment in a series of patients suffering from the acidosis of toxemic vomiting of pregnancy."

Thus far, the opportunity has occurred of treating only three patients[2] with severe, toxemic vomiting of pregnancy, but the results have been so striking, and parallel so exactly the results in all patients with postoperative acidosis, similarly treated, that they seem sufficiently important to report.

REPORT OF CASES

CASE 1.—Mrs. H., aged 18, admitted to the service of Dr. R. W. Roethke, Aug. 15, 1923, was about three months pregnant, and had been vomiting practically everything she had eaten for the last three weeks. She weighed about 100 pounds (45 kg.), was very pale, with the eyes deeply sunken, and she had an anxious expression. The pulse was very small and feeble; the rate was 100. There was a marked acetone odor to the breath, and the urine obtained by catheter was dark amber, and contained four plus acetone and diacetic acid, a trace of albumin, gave a strong test for bile, contained, no sugar, and showed a few hyaline casts. During the first hour after admission, the patient vomited small amounts of a dark brown material three times.

At 9 p. m., the intravenous injection of 10 per cent. glucose solution was started, and at 9:15 p. m. and at 11 p. m. 20 units of insulin-Lilly (H-iletin) was given hypodermically. By midnight, 1,000 c.c. of the glucose solution was given. The urine obtained at midnight showed acetone and diacetic acid reduced to one plus amounts, and that obtained the next morning at 8 o'clock showed only a trace of these.

The patient's appearance was much improved, and the pulse was stronger. She vomited only once or twice during the morning, and retained a considerable amount of orange juice. As there was still a trace of acetone and diacetic acid present in the urine and the vomiting had not entirely ceased, insulin and glucose were given again in the same amounts, beginning at 11:30 a. m. and ending at 3 p. m. The urine at 3:30 p. m. was free from acetone and diacetic acid. The patient rapidly improved from this time, although she vomited twice the next day. The trace of acetone and diacetic acid also reappeared, but not enough to indicate the need for more insulin. The patient was retaining all her nourishment, which was made rich with carbohydrate, but it was three days before acetone and diacetic acid spontaneously disappeared again from the urine and six days before bile disappeared. The patient left the hospital twelve days after admission, in good condition, and has remained so.

CASE 2.—Mrs. M., aged 31, a patient of Dr. J. H. Sure, was a neurotic type, and was admitted to the hospital, Nov. 29, 1923, in the third month of pregnancy. She had vomited all nourishment during the previous two weeks. She was in fairly good condition on admission, but appeared moderately dehydrated. The pulse rate varied from 100 to 110; the blood pressure was normal, and the urine showed two plus acetone and diacetic acid. For almost twenty-four hours she was given a proctoclysis, by the drip method, of 5 per cent. glucose and 3 per cent. sodium bicarbonate. She also received one

* From the Laboratories of Columbia Hospital.

1. Thalhimer, William: Insulin Treatment of Postoperative (Nondiabetic) Acidosis, J. A. M. A. **81**: 383 (Aug. 4) 1923.

2. Since this article was written, two additional patients have been treated successfully. This condition was similar to that of the three patients whose cases are reported, and their recovery was just as prompt.

dose of scopolamin, 1/150 grain, and one dose of morphin, 1/6 grain (0.01 gm.), each by hypodermic injection. At the end of this interval her condition was unchanged, including the vomiting and the urine findings. The blood alkali reserve, by Van Slyke's method, was 38.5. At 11 a. m., November 30, an intravenous infusion of a 10 per cent. glucose solution was begun, and 1,000 c.c. was administered in five hours. Thirty units of U-iletin was given in three divided doses during this interval. The patient vomited only three times in the next thirty-six hours, the alkali reserve rose to 49.4 in twenty-two hours, and the acetone in the urine was reduced to a faint trace and the diacetic acid was absent after the same twenty-two hour period. The diacetic acid did not return; the acetone was found in one plus amounts for the following twenty-four hours, and then disappeared. The patient left the hospital in a week, with an alkali reserve of 53, and with nothing more than the usual amount of morning nausea and vomiting of early pregnancy.

Several weeks later, because of her unstable nervous system, a marked depression occurred, with return of vomiting and acidosis, which caused the patient's physician, after consultation with an obstetrician, to empty the uterus.

CASE 3.—Mrs. I. K., aged 27, a primipara, a patient of Dr. Joseph M. King, had her last period, October 17. She started vomiting on November 29, probably in the fifth or sixth week of pregnancy. Vomiting and nausea were not confined to "morning sickness" but were present at all times. For the first few days the patient remained in bed, and alkalies were administered by mouth. The vomiting became more marked, and on December 4 the patient was admitted to the Milwaukee County Hospital. An obstetrician found the uterus enlarged and soft, normal in position and freely movable. Five per cent. glucose and 5 per cent. sodium bicarbonate were given by rectal drip. Examination of the urine showed no albumin or sugar, but large quantities of acetone and diacetic acid were present. The condition was relieved to a great extent and the patient was discharged, December 10. Urinalysis, December 9, showed acetone and diacetic acid still present. For several days, the patient felt fairly well, although vomiting and nausea were not entirely absent. Vomiting became more frequent, and from the 13th to the 17th she was unable to retain anything in the stomach either in liquid or in solid form.

She was readmitted as a patient, December 16. The urine showed a large amount of acetone. December 17, the blood plasma alkali reserve by the Van Slyke method at 4:15 p. m. was 46.8; 1,000 c.c. of 10 per cent. glucose was given intravenously, the injection starting at 4:15 p. m. and finishing at 8:15 p. m.

5:15 p. m.: 10 units insulin (U-10).
6:15 p. m.: 10 units insulin (U-10).
7:15 p. m.: 10 units insulin (U-10).

Urine:

6:30 p. m.: Acetone, 2+.
8:30 p. m.: Acetone, marked trace.
11:30 p. m.: Acetone, 1+.

Urine, December 18:

8:30 a. m.: Acetone, 1+; blood alkali reserve, 57.4.
11:30 a. m.: Acetone, 1+.
4:30 p. m.: Acetone, 4+; blood alkali reserve, 40.4.

December 18, the second glucose injection was started at 4 p. m., 1,000 c.c. (10 per cent. solution) being given, finishing at 8:45 p. m.

5:00 p. m.: Insulin, 20 units (U-20).
7:30 p. m.: Insulin, 10 units (U-20).

The urine before this injection showed 4+ acetone and diacetic acid.

6:30 p. m.: Marked trace of acetone.
9:15 p. m.: Faint trace of acetone.

December 19, the blood alkali reserve was 55.7.

Subsequent urine examinations for acetone were as follows:

December 19:

8:15 a. m.: Marked trace.
10:15 p.m.: Marked trace.

December 20:

8:00 a. m.: Marked trace.
5:00 p. m.: Marked trace.

December, 21:

7:00 a. m.: Marked trace.
2:00 p. m.: Faint trace.
9:45 p. m.: Marked trace.

December 22:

7:30 a. m.: Marked trace.
6:45 p. m.: Marked trace.

December 23 (morning specimen not saved):

8:00 p. m.: Marked trace.

December 24:

6:00 a. m.: Faint trace.
2:30 p. m.: Faint trace.
8:00 p. m.: Faint trace.

December 25:

7:30 a. m.: Very faint trace.

Following the first injection of glucose, the patient had some nausea and vomiting which persisted; but following the second injection the vomiting and nausea has been confined almost entirely to the usual "morning sickness," with only an occasional regurgitation of a small amount of gastric contents at times, never enough to be distressing. The temperature has always been normal; no reactions followed. The diet has been confined chiefly to carbohydrates and proteins, fats not being tolerated very well. The patient now eats a fair amount at each meal, and has no trouble in retaining the food.

Jan. 5, 1924, the patient's condition was normal, and there was only slight morning nausea on some days but not every day.

COMMENT

Patient 1 suffered from marked ketosis and toxemic vomiting of pregnancy, and there was already liver involvement, as bile was present in large amounts in the urine. This type of patient usually does not do well with other methods of treatment, emptying of the uterus eventually being required, and even then some of these cases end fatally. This patient was a further test of the insulin method of treatment, as it was found out later that she tried not to cease vomiting, as she wanted the uterus emptied. However, the patient left the hospital feeling well and reconciled to her pregnancy, and has remained well since.

In Case 2, the course of the acidosis was followed with Van Slyke's method of determining the alkali reserve. Before treatment, this was 38.5, corresponding to two plus acetone and diacetic acid in the urine, i. e., a moderately severe acidosis. The morning after one treatment with insulin and glucose, the alkali reserve had risen to 49. During the day after treatment, a small or moderate amount of acetone appeared in different specimens of urine, and the patient vomited once. This ketosis could have been eliminated by more insulin, but as the patient was retaining most of the food taken we did not wish to submit her to another treatment and knew that the utilization of food would remove the ketosis. This has been the experience in treatment of postoperative acidosis. As in these patients, so with Patient 2, it took the body several days to rid itself of a slight ketosis, whereas insulin and glucose removes this condition in a few hours.

In Case 3, a second course of treatment was necessary twenty-four hours after the first. Ten units of U-10 iletin was used for the first treatment, as U-20 iletin was not available. H-10 and U-10 iletin have not seemed as efficient as H-20 or U-20. When U-20 was used in the second treatment, the acidosis, etc., cleared up promptly in the usual manner.

It was pointed out in the previous article [1] that the intravenous injection of glucose solution alone, in a large experience with this procedure, produces only a slight improvement in patients with postoperative non-diabetic acidosis, and it takes several days for the acidosis to clear up. The primary cause of postopera-

tive acidosis is not known, but it is definitely known that, with the development of this condition, severe vomiting ensues and completes a vicious cycle by causing starvation and still more acidosis (starvation acidosis). In all probability the reason intravenous glucose alone does not benefit these patients markedly is that there is an impairment of the mechanism of carbohydrate metabolism. Insulin causes the rapid utilization, that is, burning, of glucose in the body. The metabolism of fats, and their intermediary products acetone, diacetic acid and oxybutyric acid, is to a large extent dependent on the metabolism of carbohydrate. It is graphically stated that "fats burn in the fire of carbohydrates." Since insulin increases the combustion of carbohydrates it also increases that of fats and the mentioned intermediary metabolic products, which are of extreme importance in causing acidosis or ketosis. The remarkable and dramatic results achieved with insulin in clearing up diabetic acidosis and even coma are also caused by insulin, when combined with intravenous glucose, in relieving severe postoperative acidosis in a series of nondiabetic patients now numbering twelve, and in the three patients with ketosis and vomiting of pregnancy reported in this article.

Fisher and Snell [3] have reported the successful treatment of a patient with both preoperative and postoperative nondiabetic acidosis.

Besides the secondary effect of insulin on ketosis through its influence on carbohydrate metabolism, Collip first, and later Campbell,[4] have some evidence that insulin has a moderate, direct power to cause disappearance of the acetone bodies of ketosis. Collip's report appeared early in his studies, and has apparently been lost sight of in the tremendous amount of literature that has since accumulated about insulin.

Treatment with insulin should be reserved for the time being for the most severe type of toxemic vomiting of pregnancy. Milder cases clear up when the patients are given rest in bed, sedatives, and glucose solution by rectum, as demonstrated by Harding and Potter [5] and others.

The curative power of insulin in the ketosis of pernicious vomiting of pregnancy seems to act in the same way as in postoperative, nondiabetic acidosis. Some patients will require only one treatment; others may need several. The response of the individual patient will indicate the number of treatments that may be necessary.

The three patients treated by this method have all been in the early months of pregnancy. The acidosis and excessive vomiting were relieved promptly. The condition of these patients soon returned to that which is normal in early pregnancy. It was not expected that the usual morning nausea and vomiting present at this stage of pregnancy would be eliminated. But except in one case, in which the cause of the excessive vomiting was undoubtedly neurogenic, the nausea and vomiting following the treatment was not greater than average and did not interfere with the nutrition of the patients.

Recently, Williamson [6] has reported a definite but slight gradual decline in the venous plasma carbon dioxid combining power of women during pregnancy, which is of such a nature as to tend to acidosis, i. e., a diminution of the alkali reserve. The cause of this change in metabolism is still undiscovered, and all that can be concluded as yet is that pregnancy is at the basis of this. This investigation [6] justifies my suggestion that some alteration of the body's metabolism is responsible for the onset of the toxemic vomiting of pregnancy and the inability to retain food, causing starvation, completes the vicious cycle of acidosis or ketosis, which is associated with diminished alkali reserve of the blood plasma.

3. Fisher, David, and Snell, M. W.: Wisconsin M. J. **12**: 220 (Oct.) 1923.
4. Campbell, W. R.: J. Metabol. Res. **2**: 605 (Nov.-Dec.) 1922.
5. Harding, V. J., and Potter, C. T.: Brit. J. Exper. Path. **4**: 105 (June) 1923.
6. Williamson, A. C.: Acid Base Equilibrium in Pregnancy and the New-Born, Am. J. Obst. & Gynec. **6**: 263 (Sept.) 1923.

METHOD OF TREATMENT

A caution should be given that only pure, tested glucose should be used in preparing the glucose solution. A 10 per cent. solution is convenient to use, as with it the patient receives a fair amount of much needed water along with the glucose. The solution should be run in slowly,[7] about 200 to 300 c.c. an hour, and it is important that it be kept warm; 1,000 c.c. is the amount usually given at a time. About fifteen minutes after the injection is started, about 10 units of insulin is given hypodermically (i. e., 10 of the new U-iletin units). At intervals thereafter 10 units is given until for 100 gm. of glucose (1,000 c.c. of 10 per cent. solution) 30 units of insulin is given. One unit of insulin (U-iletin) causes the utilization of from 2 to 3 gm. of glucose, but for safety a slight excess of glucose should be given to prevent a hypoglycemic reaction of insulin shock. It is wise to have epinephrin available for hypodermic use for treatment of a hypoglycemic reaction. Up to the present, however, this has never been needed.

Even greater care must be taken in treating nondiabetic patients with insulin than in treating diabetic patients.

Also, some patients with eclampsia, especially those with ketosis, may be benefited by this method of insulin treatment, but there has not yet been an opportunity to treat any of these.

Undoubtedly, eclampsia is a more complicated and serious condition than pernicious vomiting with ketosis. Even in the preeclamptic stage, renal changes of a nephritic nature have occurred, the blood pressure is unduly increased, and organic lesions are present in the liver.

Acidosis, if it is present, can be removed by the method described, and probably vomiting also. But the blood pressure (which will not be increased by this treatment alone) and other symptoms should be carefully watched and, if these do not improve, no time should be lost in either emptying the uterus, or carrying out whatever other treatment is indicated.

An opportunity has not occurred for treating patients with the cyclic vomiting and acidosis of childhood, although one can feel quite certain that the effect here also will be specific on the acidosis.

I have prepared for operation one patient who had a large carcinoma of the stomach by giving her, the day before operation, 1,000 c.c. of 10 per cent. glucose solution intravenously and 40 units of insulin (H-iletin) in divided doses. For three days, after an almost complete gastrectomy, the same procedure was repeated twice a day to give the patient both water and food, while nothing was given by mouth. The patient said she felt stronger after each administration, did not complain of thirst, and her pulse did not rise above 80. The same procedure has also seemed of value in the preoperative and postoperative treatment of a number of

7. Thalhimer, William: A Simple Apparatus for Accurate Intravenous Administration of Glucose Solutions, J. A. M. A. **78**: 190 (Jan. 21) 1922.

other patients. Therefore, this method might be of service in preparing undernourished patients for operation, and in feeding patients after gastric or intestinal operations or individuals with a severe diarrhea. It is suggested that it be used in patients with hypertrophied prostates who are bad operative risks. Enough glucose should be given so that there will be an excess over that utilized by the insulin that is secreted in the urine. This glycuresis does no harm, and in patients with lowered renal secretion, causes the benefit of diuresis.

Insulin combined with intravenous glucose seems to cause a definite increase in the force of the heart beat. The explanation might be that the heart muscle is better able to convert the supplied glucose into energy, when insulin aids in the utilization of the glucose by the heart muscle.

SUMMARY

Insulin has been demonstrated to have as rapid a curative effect on ketosis and the toxemic vomiting of pregnancy as it has on preoperative and postoperative nondiabetic acidosis. This evidence suggests that the field of insulin therapy may be extended to other nondiabetic conditions.

THE INSULIN TREATMENT OF PREOPERATIVE AND POSTOPERATIVE NONDIABETIC ACIDOSIS *

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The action of insulin in the treatment of diabetes is well known, and its specificity in the acidosis and coma complicating this has been sufficiently demonstrated to give it a distinct clinical basis. Since insulin causes such a rapid disappearance of diabetic acidosis, it first occurred to Thalhimer [1] that the various types of nondiabetic acidosis might be treated just as successfully, and in a recent publication he gave a new impulse to the use of insulin by reporting three cases [2] of postoperative acidosis treated with insulin in which there was almost an immediate cessation of vomiting and ketosis. The results obtained were more rapid and more certain than by the use of glucose alone. This immediately opens a large, new field for the therapeutic use of insulin, one unforeseen by its original investigators, and at the same time, if properly placed on a distinct clinical basis, puts into the hands of the surgeon and obstetrician a potential remedy for a complication most feared heretofore.

Several days following the publication of the original investigation in this field, it was our privilege to observe a case of preoperative acidosis due to starvation and incessant vomiting induced by an acute abdominal condition. The following report of this case, which appeared in the recent literature,[3] shows how specific the action of insulin and glucose is in this type, as specific as in the case of postoperative acidosis reported by Thalhimer.

Case 1.—H. T., a man, aged 27, admitted to the National Military Hospital, Aug. 17, 1923, had had severe abdominal pain and vomiting for six days before admission, and had eaten no food during this time. The temperature was 100.8; pulse, 110; respiration, 24. He had a severe chill lasting eight minutes. The abdomen was tense and rigid, with generalized tenderness. The urine was acid and amber colored; the specific gravity was 1.028; acetone was three plus (sodium-nitroprussid test); diacetic acid, three plus (ferric chlorid test); there was no albumin or sugar. Under a local anesthetic, a gangrenous appendix was removed by Dr. E. H. Mensing and drainage was instituted.

After the abdominal incision was closed, the patient was given 500 c.c. of a 10 per cent. glucose solution intravenously so that the entire time of administration consumed one hour and ten minutes. Soon after the glucose was started, 20 units of H-20 insulin-Lilly was given hypodermically and another 20 units at the end of administration. At the same time sodium bicarbonate solution was given rectally. Two hours after the glucose was given, vomiting ceased, and the acetone and diacetic acid were reduced to one plus; 500 c.c. of glucose was given again, and 15 units of insulin at the beginning and end of the administration. Three hours later the acetone and diacetic acid had entirely disappeared, but the urine this time showed a slight trace of sugar. The well-being of the patient was 100 per cent. improved. He refused any food for the next thirty-six hours, and at the end of this time the urine showed acetone two plus. This was quickly controlled with 500 c.c. of glucose with 20 units of insulin. Convalescence from here on was uneventful.

Preoperative acidosis, when present, is a severe complication of the surgical condition that it accompanies, in the majority of cases. Theoretically, this is a contraindication to immediate surgical intervention, and does not give the surgeon much choice in the matter because of the severity of the pathologic condition present, and the former methods of treating the acidosis by the use of glucose alone, with or without alkalis, were, at their best, time consuming and always uncertain as to results, especially when the acidosis is intensified by the operation.

The second case of preoperative acidosis in our series demonstrates the specificity of the insulin-glucose method of treatment even more emphatically.

Case 2.—A. A. H., a man, aged 46, admitted to the hospital, Dec. 22, 1923, for two days had had severe, colicky, abdominal pain beginning in the epigastrium and radiating to the right and left upper quadrants. Practically no food had been taken for four days before admission, and vomiting had been incessant for the last forty-eight hours. Jaundice was generalized and intense. The temperature was 99; pulse, 60, and respiration, 22. The patient weighed 278 pounds (126 kg.). The abdomen was full protuberant, tense and rigid, with generalized tenderness and muscle spasm. The urine was amber; clear, acid, 24; acetone, three plus (sodium-nitroprussid test); diacetic acid, three plus (ferric chlorid test); there was no albumin or sugar. The breath had a strong odor of acetone. One thousand cubic centimeters of a 10 per cent. glucose solution was given intravenously so that the time of administration consumed one hour. Five minutes after the glucose was started, 15 units of U-20 insulin-Lilly was given hypodermically, and 15 additional units at the termination of the administration of the glucose. Three hours later, under general anesthesia, the patient was operated on by Dr. E. H. Mensing, and urine examined at this time showed acetone two plus and diacetic acid one plus. Sugar was now present in the urine. Nine hours after operation, the acetone was one plus and diacetic acid was absent, with a slight trace of sugar in the urine. Eighteen hours following the administration of the glucose and insulin, the urine was entirely free from acetone and diacetic acid, with a slight trace of sugar still present, which subsequently rapidly disappeared. The patient did not once vomit from the time the glucose and insulin were given, and convalescence from here on was uneventful.

* From the Surgical Service of the National Military Hospital.
* Read before the Milwaukee Academy of Medicine, Feb. 12, 1924.

1. Thalhimer, William: Insulin Treatment of Postoperative (Nondiabetic) Acidosis, J. A. M. A. 81: 383 (Aug. 4) 1923.

2. Dr. Thalhimer has treated twelve cases successfully (personal communication to the authors).

3. Fisher, David; and Snell, M. W.: Insulin Treatment in Postoperative Nondiabetic Acidosis, Wisconsin M. J. 22: 220 (Oct.) 1923.

Thus, in this particular instance, a comparatively poor surgical risk was quickly transformed into a fair or good risk. It is not at all necessary to wait for the disappearance or diminution of the acetone and diacetic acid from the urine before proceeding with operation, and when the time element is an important factor, this procedure can be carried out during the course of the operation; for, in the five cases thus far recorded, the action of the glucose in combination with the insulin has been specific and can be depended on. Since glucose in itself is a diuretic and tends to deplete the body of its fluids, it is our custom to administer fluids by rectum simultaneously with the administration of the insulin and glucose.

We had the opportunity to compare this method of treatment with that of glucose alone in another patient:

CASE 3.—Following a closure of a gastro-enterostomy by Dr. E. H. Mensing, the patient developed an acidosis in which the urine showed a two plus acetone and diacetic acid. Two thousand cubic centimeters of a 5 per cent. glucose solution was administered rectally, all being absorbed, and twenty-four hours later the urine still showed acetone two plus, which immediately cleared up when 15 units of U-20 insulin-Lilly was given hypodermically.

As compared with Cases 1 and 2, a greater length of time was consumed and yet the glucose alone did not clear up the condition, even though of a milder grade; and not until insulin was given did the ketosis disappear. This would seem to indicate that insulin is the essential factor, rendering this method of treatment much more efficacious and rapid over glucose alone.

Thalhimer previously observed the effects of glucose administration alone in one of his cases. The ketosis still persisted, and only after the addition of insulin were the desired results obtained, and obtained rather quickly. Which of the two factors, insulin or glucose, is the more important it is difficult to say; however, the combination of the two seems to be specific, whereas with glucose alone the results are uncertain. To give insulin alone is to assume the presence of a sufficient available quantity of carbohydrate in the body, which usually is not the case in these nondiabetic conditions, and hence renders such a procedure dangerous. It is quite important that enough glucose be administered to take care of the number of units of insulin given, and it is best to give enough so that there will be some glucose remaining in the blood stream after the insulin has been utilized, furnishing a safety valve on the sugar content. Three grams of glucose should be given for every unit of U-20 insulin-Lilly administered. If the urine shows the presence of sugar in the face of the disappearance of the acetone and diacetic acid, this may be ascribed to the carbohydrate administered, and furnishes additional evidence that the insulin given will not draw on the normal blood sugar supply to the extent of causing hypoglycemia with its attendant dangers.

COMMENT

The exact nature of the ketoses is still unknown; however, it seems that the primary factors are either insufficient carbohydrate intake or perverted carbohydrate metabolism, or a combination of the two. In the diabetic type of acidosis, ketosis is present when the perverted body metabolism can no longer utilize sufficient carbohydrate to oxidize the fat completely, or when there is an insufficient carbohydrate intake. In the nondiabetic type of acidosis under discussion, we are dealing with a vicious circle; vomiting occurs, preceded or followed by ketosis, preventing carbohydrate intake necessary to burn fats, with a resultant aggravation of all symptoms.

It appears clinically that, in the perverted body metabolism, carbohydrate cannot be utilized as quickly or as satisfactorily as in an individual with normal metabolism. It seems that the introduction of insulin supplies the unknown factor in nondiabetic acidosis to make immediately available, for body needs, the introduced carbohydrate. Since time is always an important factor in nondiabetic preoperative or postoperative acidosis, the tremendous advantage of insulin and glucose over glucose alone can be readily appreciated.

Harding and Potter [4] have carefully investigated the acidosis of the toxemic vomiting of pregnancy, and in this condition were able to bring about a cessation of the vomiting and acidosis by the use of glucose by rectum, subcutaneously and, on occasion, intravenously. It took five or six days, however, to effect this. It seems clearly evident that in these types of individuals, since the ketosis is due to starvation and to an inability to retain food, the use of insulin and glucose will cause an immediate cessation of vomiting as well as a rapid clearing up of the ketosis, just as it has in these cases of preoperative and postoperative acidosis; for the physiologic background is identical in the two classes of cases.

In the combined method of insulin and glucose administration, in the nondiabetic acidoses, it seems that we have a therapeutic vehicle almost specific in action, taking place in a very short period of time, and which can be repeated as often as necessary. It seems to control, at the will of the operator, the very delicate carbohydrate metabolic balance of the organism, as in Case 1, in which, after thirty-six hours of no food intake, the acetone again appeared, but was immediately driven off by another injection of insulin plus the intravenous administration of glucose. The ability of insulin to cause a rapid utilization of carbohydrate in normal diabetic persons is an established fact. The severe vomiting that usually occurs in the nondiabetic acidosis causes a decrease in the available carbohydrate; hence, it seems that a combination of the two factors is scientifically sound in the therapy of acidoses, and the six cases thus recorded demonstrate this.

CONCLUSIONS

1. Hypodermic administration of insulin, together with intravenous injection of glucose, caused the disappearance of severe acidoses in two patients subsequently operated on for acute abdominal conditions.

2. A third case of postoperative acidosis of a rather severe degree was practically unchanged at the end of twenty-four hours by the use of glucose alone by rectum. The subsequent administration of insulin brought about an immediate disappearance of the ketosis.

4. Harding, V. J., and Potter, C. T.: The Excretion of "Acetone" and Nitrogen in Nausea and Vomiting of Pregnancy, Brit. J. Exper. Path. 4: 105 (June) 1923.

A Tribute to the Physician.—Behold the unassuming bravery of the physician! He sacrifices rest and comfort. He risks his life. He asks not who the patient is; it is enough that it is a suffering fellow-being. Medical practice brings him a living, but he carries it on as a help to others. He does his utmost. In the midst of our peaceful or troubled existence a quiet heroism is at work to which hardly any one pays any attention. The physician himself sees nothing remarkable at all in his courage or his efforts. It is the simplest and most natural thing in the world. Such is the true physician in christendom.—Nathan Söderblom, Archbishop of Sweden.

THE COLLAR OF VENUS: MELANOLEUKODERMA COLLI OF SYPHILIS

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Hardy, in 1853, under the designation of "syphilide pigmentaire du col," was the first to describe the condition of melanoleukoderma colli, or supposed pigmentary syphilid. The condition has also acquired the name of "venereal collar," or "collar of Venus." The most usual time for the appearance of melanoleukoderma colli is in the first or second year of the syphilitic process. Ordinarily it is limited to the neck and the immediately adjacent cutaneous surface; very rarely it is present on the face and forehead or the chest, trunk and thighs. It is considered a rare manifestation of syphilis, but when present is pathognomonic for the disease. It occurs most frequently in women, and dark haired people show it more often than blonds. The locations other than the neck are affected more in males than in females.

The younger women are usually the known subjects of this discoloration, but it should be remembered that more young women than old are in the secondary phase of syphilis. The fact, however, that older women seldom manifest the condition would indicate that the disorder is not permanent, or else that the women who have had it do not come under observation later in their career.

Fig. 1.—Melanoleukoderma colli: extensive figuration of dark and light skin of neck in woman patient.

In appearance, the old description of simulating a neck sunburned through a lace pattern still holds true. No other method of rotating the shades of dark and light with beautiful symmetry seems to fit. The peculiar mottled appearance always calls for comment when seen. Ordinarily, the condition occupies both sides of the neck. The entire appearance is that of pigment in, not on, the skin. There are no subjective symptoms.

The peculiar interrelation of light and dark areas as evidenced in a patient with leukoderma colli is encountered in no other complex. As far as one is able to judge, the condition comes on unnoticed by the patient, and often exists without the patient's knowing it. I have seen no case advance, nor have I seen regression of the lesions even with treatment. The lesions may disappear, however, and most likely do. The cause of the condition has not been definitely decided. It has been asserted that the dark areas exist on the location of preexistent lesions of cutaneous syphilis; likewise that the light areas of the manifestation are on the sites of the earlier syphilitic lesions.

It is affirmed that the pigment in this type of pigmentary syphilid is true skin pigment, or melanin. The question of how the melanin reaches the skin in the regions affected remains unanswered. The chromatophores may bring in the pigment to the dark areas, but how do they avoid the light areas? Or does the alternation mean that the pigment-bearing cells come out of the light areas and settle in the areas surrounding them, making the dark areas? Is the pigmentary collar the result of a preceding eruption, or does it arise from preceding healthy skin? Is there any normal skin in the collar of Venus? Does the pigmentation mean a general upset of the pigmentary economy of the body, or is it a purely local reaction? Has treatment anything to do with the formation of the pigmentary syphilid?

I have, unfortunately, had no personal experience with the "Dopa reaction."

The possibility that the suprarenal chromaffin system is disturbed by the generalized syphilitic invasion also must be considered. One should likewise consider the related systems, as the perirenal nerve plexus. In this regard, the pigmentary changes in syphilis are placed in the same category as pigmentary changes in Addison's disease, or those diseases associated with pigmentary cutaneous changes associated with other nerve or organ system complexes, as chloasma of uterine origin.

The symmetry of leukoderma colli would also suggest a possible nerve injury. Such nerve injury has been claimed for leukoderma as found in some syphilitic patients. In one case previously described,[1] every effort from both the clinical and the laboratory side failed to reveal such changes, despite the fact that the vitiligo was beautifully symmetrical.

Despite an extremely broad opportunity afforded me for observation of active cutaneous syphilitic patients in the primary and secondary periods of the disease, I have never been able to determine the beginning or end of leukomelanoderma. The symptom is noticed on my routine examinations, and the persistence noted despite vigorous antisyphilitic treatment. At odd times in the past, the symptom has occurred in patients visiting me for some other condition apart from syphilis or its sequelae, and in each instance confirmative evidence of a syphilitic infection has been revealed.

Pigmented and depigmented areas after syphilitic lesions which lead to scarring should not, of course, be subject to confusion with the so-called pigmentary syphilid under discussion. The relation to other pigmentary and depigmentary cutaneous lesions of syphilis is not clear. Patients with syphilis present areas of vitiligo in as high as 40 per cent. of the cases (according to some), and, likewise, areas of hyperpigmentation have been encountered in syphilitic patients, especially in my own experience after arsenic therapy in the form of the arsphenamins. The association of vitiligo as ordinarily understood and syphilis is in my opinion decidedly distinct from the leukomelanoderma of the

1. Parounagian, M. B., and Goodman, Herman: Symmetrical Leukoderma in a Syphilitic, M. Times, May, 1923.

leukoderma colli of syphilis. This conception is likewise entirely apart from the distinction made by the French authors concerning differences between leukoderma and vitiligo. To them, if no hyperpigmented border is present, the condition should be called leukoderma; but if a zone of hyperpigmentation surrounds the area of displaced pigment, the condition should be designated as vitiligo.

On the other hand, the conception of leukoderma colli as clinically essentially different by reason of infiltration, accompanied eruption, consistency and structure of the skin has not been maintained.

From time to time, both here and abroad, statistical papers have appeared giving the numerical percentages of co-appearance of clinical pigmentary dystrophies of the skin and serologic or historic syphilis, or even clinical syphilis. These are interesting and may be consulted.

I have never subscribed, however, to the contention that syphilitic patients are more prone than other persons to present vitiligo or ordinary leukoderma. It is

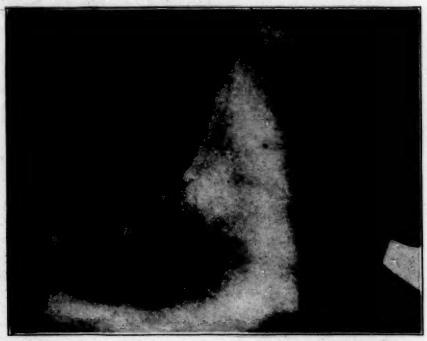

Fig. 2.—Melanoleukoderma colli: lesions extending to the shoulders in male patient; the mottling is best seen on the dark patch.

far fetched, in my opinion, to designate syphilis as the etiologic factor in every patient with areas of depigmented skin. From the mass of cases, however, the leukomelanoderma or leukoderma colli, or so-called collar of Venus, stands apart as evidently associated with syphilis, and diagnostic of a syphilitic infection. The history of patients with leukoderma colli differs in no material respect from the history of patients of like age and sex who do not present the manifestation. I have not satisfied myself as to any possible associated etiologic condition either physiologic or pathologic. For the present, I will content myself with this rambling review of the present state of ignorance of conditions encountered in syphilitic patients.

In passing, I will mention briefly the conditions that may require clinical differentiation from leukoderma colli:

Chloasma, which is ordinarily found on the face, is infrequently the site of this type of pigmentary syphilid, and the mottling which is part of the characteristic picture of syphilid is absent. Chloasma is present in the older rather than the younger woman, who most frequently presents the melanoleukoderma of syphilis.

Tinea versicolor, or pityriasis versicolor, is a scaly disease, as its name reveals, sometimes pruritic, and the organism described by Eichstedt (*Microsporon furfur*) may be demonstrated under the microscope.

Vitiligo and leukoderma of nonsyphilitic patients is usually not symmetrical, and does not present the intermingling of the café au lait coloration. The question of the presence of vitiligo and leukoderma in syphilitic patients has been mentioned in the body of this paper.[1]

The following conditions need but be named to be dismissed: Addison's disease; von Recklinghausen's disease; vagabond's disease; argyria, and pigmented nevi.

15 Central Park West.

TREATMENT OF SYPHILIS COEXISTENT WITH A CONDITION SIMULATING DIABETES

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The majority of authors who have written on the subject of diabetes mellitus agree that, in those cases in which diabetes is coexistent with syphilis, antisyphilitic treatment yields but little improvement of the diabetic condition. Nevertheless, there appears in the literature an occasional report of a case in which diabetes seems to have developed as a result of syphilitic infection, and in which antisyphilitic treatment effected an apparent clinical recovery. Although most of these cases were reported before the days of the Wassermann reaction and the details are rather meager, the evidence seems to establish the existence of syphilis and a condition resembling diabetes, rather than the transient glycosuria that frequently occurs during the various stages of syphilitic infection.

CASES PREVIOUSLY REPORTED

Umber[1] reports the case of a man, aged 48 years, who had had a chancre in 1898. During 1909 he began to suffer with dyspeptic symptoms and uncertain epigastric pains, excessive thirst and dryness of the mouth. He had lost 18 pounds (8 kg.). He had had slight jaundice. Examination revealed a palpable abdominal tumor, a positive Wassermann reaction, blood sugar 0.43 per cent. and voluminous fatty stools. The day subsequent to a diet containing 147 gm. of carbohydrate, he excreted 113.4 gm. of sugar in the urine. Following the injection of 0.4 gm. of arsphenamin, the tumor decreased in size, the excretion of sugar ceased, and the other symptoms were relieved. There was a continuous gain of weight, and, when observed one year later, the tumor had disappeared and the patient was sugar-free without any restriction of carbohydrate.

Ehrmann[2] records the case of a man who had had an ulcer on the penis. Several weeks later an eruption appeared over the body, and at the same time he experienced polydipsia, polyuria, polyphagia and loss of weight. He excreted 8.8 per cent. of sugar in about 4,000 c.c. of urine, with strong diacetic and acetone reactions. He was given a slightly restricted diet and mercury inunctions. One and one-half months later he tolerated 150 gm. of glucose without excreting sugar in the urine. This might have been a transient glycosuria.

Lemonnier[3] records the case of a man, aged 48, who had been treated dietetically for five months without improvement of the diabetes. He excreted about 3,000 c.c. of urine in

1. Umber: Zur viszeralen syphilis und ihrer Heilung durch Salvarsan, München. med. Wchnschr. **58**: 2499, 1911.
2. Ehrmann, R.: Ueber schweren Diabetes infolge syphilitischer Infektion, Deutsch. med. Wchnschr., 1908, No. 30, p. 1303.
3. Lemonnier: Diabète syphilitique, Ann de dermat. et de syph. **9**: 398, 1888.

twenty-four hours containing 84 gm. of sugar per liter. A gumma was discovered in the pharynx, and antisyphilitic treatment was instituted with iodid and inunctions. In four weeks the gumma was cured and the urine was sugar-free. Repeated examinations during eleven months while the patient was taking a general diet were negative for sugar in the urine.

Lemonnier[4] reports a second case in a girl, aged 7½ years, who had displayed anal syphilids when 22 days old. The symptoms were extreme thirst, polyuria and marked loss of weight. The urine volume was from 4 to 5 liters daily, and showed a considerable quantity of sugar. There was some enlargement of the liver. The treatment consisted of iodid, and mercury inunctions. After four months all symptoms had disappeared. Thirteen months later a general diet was tolerated without any recurrence of the trouble.

Revillet's[5] case was that of a woman, aged 70, who had contracted syphilis through the medium of a wetnurse many years previously. She had taken incomplete antisyphilitic treatment at various times. She had suffered from arthritis for a number of years and later from marked pruritus vulvae. A twenty-four hour specimen of urine amounted to 3,500 c.c. and contained 60 gm. of sugar. Antisyphilitic treatment was carried out with iodids and later with mercury. After twenty-five days of treatment the urine became sugar free and the pruritus had been relieved. After three months the condition appeared to be cured.

Albu[6] gives the data on a case which has been reported by Chrzelitzer. A man, aged 28, had contracted syphilis. The following year he displayed an exanthem and began to suffer from vomiting, pyrosis, abdominal pain, violent thirst and general weakness. The examination revealed a maculopapular exanthem and icterus. The liver was enlarged and the surface was studded with nodules of various sizes. A large, movable tumor could be palpated between the ensiform process and the umbilicus. Pressure in the gastric region was very painful. There was a continuous irregular fever. The urine contained 2.2 per cent. of sugar. The stools showed many muscle fibrils and fat droplets. Diarrhea with viscous stools alternated with constipation. Antisyphilitic treatment was instituted, and in four weeks there had been a complete cure of all subjective and objective phenomena.

Albu adds the following case: A man, aged 44, had contracted syphilis fourteen years before. He had been treated with iodids and inunctions. Two months previously he had started to suffer from anorexia, eructation and nausea, and the stools had become irregular. Four weeks previously, icterus had developed and had been increasing in intensity. On examination in March, 1906, he displayed emaciation and marked icterus. The liver was enlarged and firm, and the surface somewhat irregular. The stomach contents displayed an anacidity. The urine contained no sugar. The stools were clay colored. These conditions cleared up spontaneously except for a slight persistent enlargement of the liver, and the patient gained weight. During April, 1908, diarrhea appeared with from five to eight unformed stools a day. He was again suffering from anorexia, eructation and a tendency to vomiting. He had lost 25 pounds (11 kg.) and had become very weak. The patient's appearance was suggestive of anemia. The eyes and palate were yellowish. The liver was still enlarged, but seemed normal in consistency. A dense, resistant mass could be felt above the umbilicus in the deep tissues. The stools were voluminous and grayish white, and showed an excessive amount of undigested muscle fibrils and fatty acid crystals. The urine contained 0.9 per cent. of sugar, but no acetone or diacetic acid. The patient was treated with enemas of potassium iodid. During the first few weeks the urinary sugar varied between 0.5 and 1.4 per cent., and then disappeared entirely. The recovery was rapid and permanent, and when he was seen again in 1909, no new symptoms had appeared. The patient remained well until the date of this report.

4. Lemonnier: Diabète hérédosyphilitique, Arch. d. méd. d. enf. **4**: 162 (March) 1901.

5. Revillet: Diabète chez une syphilitique ancienne, guéri tout au moins en apparence par le traitement hydrargyrique, Lyon méd. **125**: 374 (Aug.) 1916.

6. Albu, A.: Beitrage zur Diagnostik der inneren und chirurgischen Pankreaserkrankungen, Halle, 1911.

Walter-Salis,[7] in discussing syphilis of the pancreas, reports four cases with glycosuria: A man, aged 52, lost weight and suffered from vomiting, thirst, fever and diarrhea. He displayed traces of sugar in the urine. He had had syphilis for thirty-four years. A pulsating tumor was present in the epigastric region in the median line. Treatment with iodids and mercury caused the tumor to disappear, and a cure was obtained.

A man, aged 63, who had had syphilis, lost weight and displayed glycosuria. Treatment with arsenic and mercury produced a cure.

A man, aged 57, had suffered for ten years. He had had epigastric pains, vomiting, icterus and glycosuria. The Wassermann reaction was positive. Treatment with arsenic and mercury produced a cure.

A man, aged 36, had had a chancre and secondary eruptions six years previously. His illness was of five weeks' duration.

Fig. 1.—The stomach, as it appeared on the first examination, in March, 1921, with an 8 ounce barium meal.

The symptoms were intense epigastric and abdominal pains, intense thirst and excessive appetite. He displayed marked emaciation. In the right subclavicular region there was the cicatrix of an ulcerated gumma, and the right chest wall showed erosive syphilids. The bowel movements were very fetid and contained much fat. The twenty-four hour urine volume amounted to 7 liters and contained 123 gm. of sugar. On the first day of treatment, 875 gm. of sugar was passed in the urine. Mercurial treatment was instituted, and at the end of two months the patient had regained good health.

Additional cases are to be found in the literature, but the data are so meager as to be far from convincing. Such a one is the case of a girl, aged 13 years, who was seen by Schnee[8] in 1881. The child had diabetes of several months' duration; her father had had syphilitic infection prior to his marriage. Treatment consisted of hydrotherapy, diet and

7. Walter-Salis: Syphilis du pancréas, Ann. de dermat. et de syph. **4**: 657, 1913.

8. Schnee: Zur Pathologie und Therapie des Diabetes mellitus, Verhandl. d. Cong. f. inn. Med. **5**: 184-185, 1886.

mercurials. At the age of 18, the patient was in perfect health. Encouraged by the favorable outcome of this case, Schnee followed the same routine of treatment in seventy other cases of coexistent syphilis and diabetes with fifty-three recoveries, ten improvements and seven fatalities.

Laurent's[9] case was that of a woman, aged 52, who had contracted syphilis at the age of 20. There were no symptoms of diabetes, but the patient's urine contained sugar. She refused dietary treatment, but the urine became sugar-free after two injections of mercury and continued so in five subsequent examinations.

Rosenbloom[10] quotes, among others, Pallida and Paz as having reported five cases in which a diabetic patient was cured by antisyphilitic treatment; Rosenbloom's article contains a good bibliography of the subject.

Cases of glycosuria apparently due to syphilis of the central nervous system have not been included, as such cases often display a transient glycosuria without any other symptoms of diabetes.

AUTHOR'S CASE

History.—An unmarried white woman, aged 21, seen March 9, 1921, complained of nausea and vomiting. Her father had died at the age of 63 from high blood pressure and apoplexy; the family history was otherwise unimportant. The mother's blood Wassermann reaction was negative. The past history was unimportant with the exception that the patient had not menstruated for seventeen months. She had never been robust. Ever since she could remember, she had suffered from epigastric discomfort, which followed immediately on eating. This discomfort caused nausea and vomiting; vomiting gave instant relief. She would continue to eat until she was able to retain some food. At times she would be free from vomiting for several days. She always belched a great deal during eating. Her greatest weight had been 115 pounds (52 kg.) at 15 years; during 1920 she weighed 80 pounds (36 kg.).

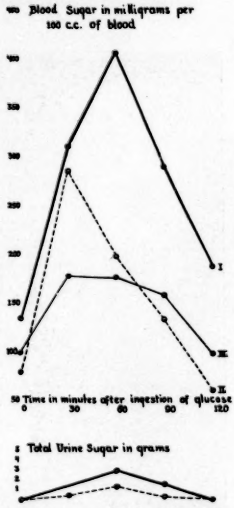

Fig. 2.—The heavy solid lines of the blood sugar and urine sugar curves represent the variations following the ingestion of 68.2 gm. of glucose, April 22, 1921. The broken lines of the blood sugar and urine sugar curves represent the variations following the ingestion of 79.4 gm. of glucose, Jan. 29, 1923. The light solid line of the blood sugar curves represents the variations following the ingestion of 74 gm. of glucose, July 7, 1923. The urine was sugar-free before the administration of glucose, but contained sugar in the second and third voidings. The greatest amount of sugar excreted was 0.35 gm. The glucose dosage in each instance represents 1.75 gm. of glucose per kilogram of body weight.

Physical Examination.—The patient's height was 5 feet, 4 inches (163 cm.); her weight was 85½ pounds (39 kg.), dressed. There was marked undernutrition. There was scoliosis of the upper thoracic spine to the right. Examination of the lungs revealed a few persistent fine, moist râles over both sides of the back, particularly throughout the upper portions. The blood pressure was 102 systolic and 78 diastolic. There was some generalized abdominal tenderness on deep palpation, especially marked in the right hypochondrium. The remainder of the examination gave normal findings.

The examination of the blood revealed: hemoglobin, 50 per cent.; red blood cells, 2,210,000; white blood cells, 8,100. The blood Wassermann reaction gave complete fixation. A casual specimen of urine showed a slight trace of albumin, 1.1 per cent. of sugar, and a positive reaction for diacetic acid. An Ewald test meal, recovered after one hour, contained no free hydrochloric acid; total acidity, 8. Fluid stools alternated with constipation, but examinations revealed no abnormality.

A roentgenogram of the chest revealed marked hilum markings on both sides with radiations to both bases and apexes. There was a slight generalized mottling of both lungs. An 8 ounce bismuth meal was taken with difficulty. Peristalsis was very active, and the stomach emptied with great rapidity. The greater curvature was situated about 1 inch above the umbilicus; the stomach was very small and of a funnel shape with marked constriction; it was not freely movable at any part. There was marked ptosis of the large bowel.

Course.—The patient was admitted to a hospital for treatment, March 12. The first three days the diet consisted of, approximately, carbohydrate, 20 gm.; protein, 22 gm.; fat, 70 gm. She continued to vomit frequently, and the urine, although sugar-free, gave marked reactions for acetone and diacetic acid. The alveolar carbon dioxid varied between 42 and 48 mm. of mercury by the Fridericia method. For the following ten days the diet consisted of, approximately, carbohydrate, 125 gm.; protein, 40 gm.; fat, 12 gm. With this diet the urine continued to be sugar-free and the acid bodies quickly disappeared. On the sixth hospital day the first dose of neo-arsphenamin was given; two days after this injection, the vomiting practically ceased. On the fifteenth hospital day, the routine soft diet was given and was followed by the immediate excretion of sugar in the urine, the amount varying between 1.7 and 9.0 gm. in twenty-four hours. April 22, a glucose tolerance test was performed with the results shown in Figure 2. Between March 18 and May 27, the patient received 5.85 gm. of neo-arsphenamin intravenously in ten injections. Treatment with iodid and mercury was then instituted; and a general diet, with the exception of sugar was allowed. June 11, the fasting blood sugar was 89 mg. per hundred cubic centimeters of blood. During October, 1921, menstruation returned. Between September 23 and November 10, the patient received 6.3 gm. of neo-arsphenamin in seven doses. This was followed by further treatment with mercury and iodid. Since January, 1922, a general diet has been taken, without any restriction.

There was a steady gain in weight, and during November, 1922, the patient weighed 108½ pounds (49 kg.), dressed. Jan. 29, 1923, the second glucose tolerance test was performed with the results shown in Figure 2. Between Feb. 7 and March 28, the patient received 4.8 gm. of neo-arsphenamin intravenously in eight injections. This has been followed by intramuscular injections of mercuric salicylate at weekly intervals. July 7, the last glucose tolerance test was performed, with the improvement shown in Figure 2. July 12 the last roentgenologic examination was made. A 16 ounce bismuth meal was taken with ease. The greater curvature of the stomach was on a level with the umbilicus. The two roentgenograms show the progressive improvement that has taken place in the size and shape of this organ. In spite of the almost continuous antisyphilitic treatment, the blood Wassermann reaction has remained strongly positive; at the same time there has been no improvement in the marked secondary anemia, which is now approaching an aplastic type, although there are still evidences of active regeneration. The blood count shows: hemoglobin, 35 per cent., Dare; red blood cells, 3,000,000; white blood cells, 3,500. Differential: polymorphonuclears, 36 per cent.; basophils, 1 per cent.; small mononuclears, 61 per cent.; transitionals, 2 per cent. The smear shows marked anisocytosis and numerous poikilocytes, some diffuse basophilia, and several nucleated red blood cells. The platelets seem to be somewhat reduced in number. Several irritation forms of white blood cells were seen. In spite of this severe anemia and aside from slight weakness, the patient feels well and is quite active. There has been complete freedom from vomiting and spontaneous glycosuria for more than eighteen months. Many fasting blood sugar determinations have given a normal figure.

9. Laurent, C.: Glycosurie survenue trente ans après un chancre syphilitique et guérie par le traitement mercuriel, Ann. de dermat. et de syph. **43**: 718, 1912.

10. Rosenbloom, J.: A Study of the Relation Between Syphilis and Diabetes, Am. J. Syph. **8**: 634 (Oct.) 1921.

COMMENT

The collection and study of the foregoing cases has been of particular interest because of the similarity of the symptoms and outcome in the various instances. No sweeping conclusions can be drawn from the study of a single case, and even though the data, with the addition of cases previously reported, are too meager to justify such conclusions, one is impressed with the fact that we are probably dealing with a syndrome based on similar underlying pathologic conditions in each instance. Of especial interest is the frequent occurrence of an epigastric tumor and the additional symptoms referable to the pancreas and gastrointestinal tract, such as abdominal discomfort, epigastric tenderness, nausea and vomiting, icterus, gastric anacidity, and disturbance of bowel movements, or pathologic stools. The clinical picture is further suggestive, in part, of a true diabetes, but we do not feel justified in classifying the condition as diabetes mellitus. Opposed to the existence of diabetes in our case is the form of the blood sugar curves following the ingestion of glucose. The two earlier curves are quite dissimilar from the typical diabetic reaction, in which the blood sugar, after having reached a high level, continues at a sustained high level for one and one-half or two hours and then gradually returns to the fasting level. The last blood sugar curve has more nearly the appearance of the diabetic reaction, but begins at a normal level, does not exceed what is considered a normal rise, and has returned to normal within two hours.

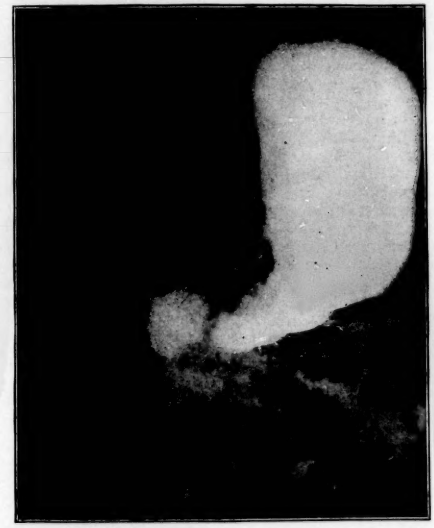

Fig. 3.—The stomach as it appeared on the last examination, in July, 1923, with a 16 ounce barium meal.

Because of the numerous factors governing carbohydrate metabolism, any explanation of the pathologic basis in these cases can be only a hypothesis. It is felt, however, that the evidence points most strongly toward an interstitial pancreatitis of syphilitic origin, involving the islands of Langerhans to little if any extent, and producing the disturbance of function of the islands either directly by pressure or through interference with their blood supply. In support of this view is the work of Seyfarth,[11] who, in studying the pancreas of four new-born syphilitic infants, found the gland parenchyma to be only slightly developed, and connective tissue occupying the greater part of the field. There were small areas of necrosis, which he regarded as tiny gummas, throughout the whole gland. There was rich blood vessel production. The islands were large and numerous. On the other hand, Warthin and Wilson,[12] in examining the pancreas of six adult diabetic patients, found evidences of syphilitic infection of the pancreas with a combined interlobular and interacinar pancreatitis and a decrease in number of the islands of Langerhans. Some of the islands showed hyaline fibrosis. In all there was more or less sclerosis of the blood vessels. It is thus seen that syphilitic pancreatitis may exist with or without damage to the islands of Langerhans, and the opinion may be expressed that it is those cases which have not yet reached the stage of permanent island damage and blood vessel change, in which such favorable results are obtained in relieving glycosuria with antisyphilitic treatment. If we agree with those who claim that syphilis is a fairly frequent cause of diabetes, the foregoing view would tend to explain the usual lack of complete cure of the disturbance of carbohydrate metabolism by antisyphilitic treatment in the syphilytic diabetic patient.

CONCLUSION

It may be stated that this series of cases, although very small, should encourage rather than discourage the most careful investigation and thorough antisyphilitic treatment of all cases of associated diabetes and syphilis in the hope of discovering new instances in which a cure may be attained, for cases similar to those compiled are probably more common than it would at present appear.

11. Seyfarth, C.: Neue Beiträge zur Kenntnis der Langerhansschen Inseln im menschlichen Pankreas und ihrer Beziehung zum Diabetes mellitus, Jena, G. Fischer, 1921.
12. Warthin, A. S., and Wilson, U. F.: The Coincidence of Latent Syphilis and Diabetes, Am. J. M. Sc. **152**:157 (Aug.) 1916.

Relation of Domestic Animals to Anopheles.—Our observations indicate that of the *Anopheles* mosquitoes common in this country, *A. quadrimaculatus* and *A. crucians*, at least, show no special predilection for domestic animals over man when such factors as size and amount of exposure are excluded. The conditions which Roubaud describes as obtaining in France are not present in this country, at all events not in the Southern states. In the milder climate of these states, many domestic animals roam at large in pastures night and day, summer and winter; stables are often of an airy construction and are rarely built immediately adjacent to human dwellings. Domestic animals may act as "buffers" in that they satisfy mosquitoes that otherwise might have fed on man, but there is little evidence that the *Anopheles* of this country have become zoophilic in the sense of Roubaud, or that they are likely to become so. It is questionable whether the increase in animal industry, apart from drainage and other concomitant improvements, has been a large factor in the decrease in malaria which has occurred in many parts of the United States. It is unlikely that a cordon of stables could afford much mosquito protection to dwellings, even if such a cordon could be maintained. So far as the results of one experiment indicate, one would not expect that a feeding on a domestic animal would affect the subsequent susceptibility of *Anopheles* to malaria parasites.—Barber, M. A., and Hayne, T. B.: *Pub. Health Rep.* **39**:139 (Jan. 25) 1924.

THE SIGNIFICANCE OF CARDIAC IRREGULARITIES

IN REFERENCE TO THE OPERABILITY OF CASES OF CHOLELITHIASIS, CHOLECYSTITIS AND DUODENAL ULCER

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AND
WALTER W. HAMBURGER, M.D.
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REPORT OF CASES AND COMMENT

BY DR. STRAUS

Cardiac irregularities in cases of gallbladder disease are not infrequent; many are functional. During the last few months I have operated in four cases (three cases of gallbladder disease and one of duodenal ulcer) in which the pulse before operation showed a permanent irregularity consisting of premature contractions. In only one of the cases was there any enlargement of the heart; none of the others showed any other evidence of organic disease. In these four cases the extrasystoles may have been due to a vagus reflex phenomenon. While it is generally agreed that extrasystoles are abnormal systoles of a portion of the heart due to impulses which originate, independent of the pacemaker and the Purkinje system, in certain heterogenic zones in the heart itself, and are due to conditions of abnormal irritability, in the cases I report this increased local irritability may have been a result of, or at least initiated by, a reflex stimulation from a vagus-supplied viscus, or due to the absorption of toxins from the pathologic organ reaching the heart and rendering it abnormally irritable, or both combined. In other words, the stimulus sent to the heart from some viscus supplied by the vagus nerve may be the primary cause of this type of abnormal contraction. I have been unable to find any similar suggestion in the literature.

In each of these four cases the pathologic change was located in organs or viscera supplied by the vagus. The correction of the pathologic lesion was apparently responsible for the disappearance of the cardiac irregularity. In cases of surgical pathologic conditions of these organs associated with extrasystole unassociated with organic heart disease, such cardiac irregularities may therefore be looked on as an additional indication for operation. Even when mild degrees of organic heart disease are present, complicating gallbladder disease, this too may be improved by removal of the gallbladder. Of course such cases require great care in evaluating the indications for operation; and it certainly is not meant to suggest that cases of frank cardiac failure are to be subjected to surgical intervention. Advanced cardiac decompensation must be regarded as a contraindication to operation. In case of angina pectoris, it is often difficult to be certain whether the gallbladder symptoms may not be merely the expression of an abdominal angina; and when the symptoms are so interpreted, operation is, of course, contraindicated. However, it must be equally borne in mind that certain frank cases of gallstone disease, with no accompanying pathologic condition of the heart, show typical symptoms of angina pectoris. In such cases operation is indicated. But in this communication only cases of extrasystoles unaccompanied by any evidence of angina pectoris, cardiac decompensation or heart murmurs will be discussed.

In all four cases a careful physical examination showed the presence of an irregular pulse; in three of the cases the rhythm was a classical pulsus bigeminus due to regularly recurring extrasystoles; in the fourth, an extrasystole not so regular in its occurrence. Electrocardiographic tracings were made in the last three cases, and showed extrasystoles. In two of the cases, the first two of the series, the irregularity entirely disappeared following removal of the gross pathologic condition in the upper right quadrant of the abdomen (cholecystectomy and freeing of adhesions) and did not return. In the third case (division of periduodenal adhesions) the pulse became absolutely regular soon after the operation, and remained regular for some days; but later the irregularity recurred, though to a lesser degree, while the patient was still in the hospital, and examination a month after the operation showed that the pulse was still irregular. In the fourth case, not only did the irregularity not disappear, but examination after the operation showed an increase in the irregularity. This was still present a month after the operation.

From these few cases it seems clear that: 1. In some cases of extrasystole due to pathologic changes in vagus-supplied viscera, the irregularity may be found to disappear following removal of the diseased organ. 2. In some cases the disappearance of the irregularity may be temporary only. These cases are more difficult to understand, and may be related to postoperative factors. 3. In some cases the cardiac irregularity may, temporarily at least, be increased. The essential point, however, is that a mere irregularity of the heart, due to extrasystoles, unaccompanied by abnormal murmurs, enlargement, cardiac decompensation, or other evidence of cardiac disease, should probably be considered no contraindication to operation in cases in which other evidence suggests that operation is indicated.

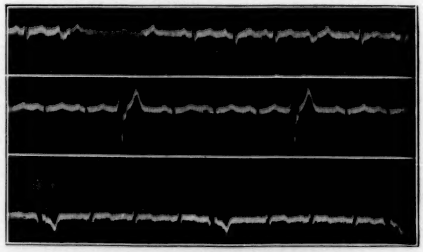

Fig. 1 (Case 2).—Ventricular extrasystoles, arising in one focus in the right ventricle, March 20, the night before operation.

REPORT OF CASES

CASE 1.—J. B., a man, aged 57, was admitted to my service at the Cook County Hospital, Jan. 7, 1923, with the diagnosis of cholecystitis, cholelithiasis and possible empyema of the gallbladder. He had been having "stomach trouble" for the last eighteen years, had had an acute gallbladder attack the year before admission, similar to this one, which presented the textbook symptoms, with a sudden onset of a very severe colic just beneath the right costal arch which began, January 3, associated with exquisite local tenderness, and which, when examined, showed marked rigidity of the upper portion of the right rectus muscle, and a visible as well as palpable localized swelling which was plainly the enlarged gallbladder. A palpable as well as audible friction rub was easily elicited. The temperature was 102.2; pulse, 100, irregular both as to

rhythm and to volume, and respirations 24. The leukocyte count was 14,200, with 85 per cent. polymorphonuclears. The patient was not jaundiced, and examination of the urine was negative for bile. The blood pressure was 130 systolic and 70 diastolic. The patient was quite clearly suffering from acute suppurative cholecystitis, with pericholecystitis and probably cholelithiasis, as the case was typical. As he looked and seemed old for his years, and his pulse was markedly irregular as to both rhythm and volume, the only question was whether to operate immediately, in view of the possibility of rupture of the gallbladder occurring, or to wait for the acuteness of the symptoms to subside. The intern who wrote the history and made the physical examination on

Fig. 2 (Case 2).—Condition, April 2, the day the patient left the hospital; slight left preponderance; otherwise, physiologic mechanism, with complete disappearance of extrasystoles.

entrance noted and drew a curve on the record sheet, showing the nature of the irregularity, a typical pulsus bigeminus. Examination of the heart showed the left border at the nipple line, right border at the sternal margin. There was a soft faint systolic murmur at the apex, which was not transmitted. My findings exactly confirmed his. The case was considered an emergency one, as it was almost certain that there was an empyema of the gallbladder. Operation was done, January 8.

The localized swelling in the right upper quadrant which had been considered to be a palpable and visible gallbladder was found in fact to be a greatly enlarged and distended gallbladder, the fundus projecting well below the lower margin of the swollen liver, and covered by omentum and transverse colon which were adherent to it by fresh, fibrinous adhesions which were easily separated. The gallbladder was greatly enlarged and distended, and its walls were thickened for the most part, but thinned, almost perforated, in several areas. Here it was green; elsewhere, bright red. The serosa was covered with fresh, fibrinous exudate. When the gallbladder was opened, the mucosa was seen to be absent over large areas; elsewhere it was edematous and inflamed. The lumen was filled and distended with discolored, brownish green bile and pus. There were no stones in the gallbladder, and none were palpated in the ducts, none of which were distended. The diagnosis was: (1) acute suppurative, gangrenous cholecystitis with empyema of the gallbladder; (2) acute fibrinous pericholecystitis; (3) chronic hyperplastic cholecystitis; (4) acute hepatitis.

I had taken the patient's pulse immediately before beginning the operation, and after the operation I was chiefly concerned about his heart. Accordingly, before leaving the hospital I went to the recovery ward and took his pulse. I was amazed to find that it was not only good but entirely regular. The record, however, showed that the pulse immediately after the operation was only of fair quality and irregular. This irregularity persisted for one hour and five minutes after the operation. The pulse record taken one and three-fourths hours after the operation showed that the pulse had become perfectly regular. The pulse remained perfectly regular during the entire time that the patient remained in the hospital, a period of twenty-nine days. He was discharged cured, February 6. The pulse readings during the last few days of his stay in the hospital ranged from 60 to 80.

I have not seen or examined the patient since. Unfortunately, no electrocardiographic tracings were taken.

The remarkable change that took place in this patient's pulse almost immediately following the operation interested me greatly. In seeking an explanation, the following possibilities occurred to me: First, that the irregularity was due to a toxic myocarditis, the result of toxins carried to the heart through the blood stream, damaging the heart muscle. Second, that it was due to a reflex vagus phenomenon, and that the severe changes in the gallbladder stimulated its nerve supply and this stimulation reflexly affected the heart, or both mechanisms might have been acting simultaneously. However, it seemed unlikely to me that a toxic factor could subside so rapidly, and for this reason one could explain the sudden disappearance of the irregularity more logically by assuming that it was due to the removal of the cause of a reflex vagus phenomenon. Extrasystoles have been noted previously in the literature in gallbladder disease during an acute attack of gallbladder colic. Extrasystoles have been produced in animals by stimulating the vagus nerve. I have been unable to find records of cases in which the extrasystoles have disappeared after gallbladder removal.

CASE 2 presents unusual interest because the cardiac irregularity developed while the patient was under observation and only a few days before she was operated on, and disappeared a few days after the operation.

CASE 2.—Mrs. E. F., aged 49, was admitted to Michael Reese Hospital, March 19, 1923, for operation. I first saw her for gallbladder symptoms, Feb. 20, 1923. She complained of a sudden, severe attack of sharp, cutting pain in the lower

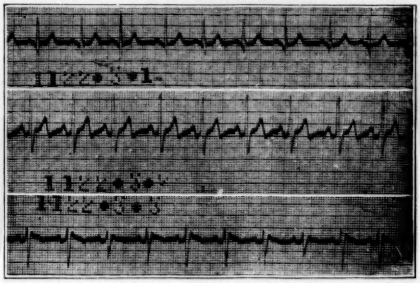

Fig. 3 (Case 2).—Regularity of heart, October 20, six months after operation: increased height of all waves (voltage), probable evidence of increased heart muscle tone (?).

part of the chest and in the back, which came on after a heavy meal, lasted for several hours, and was not associated with nausea or vomiting. At that time there was no tenderness in the gallbladder area. The following day, however, she had extreme pain in the gallbladder area associated with marked local tenderness, which she described as "being as sore as a boil." Since this original attack, she had recurring attacks of the pain almost nightly, the pain lasting from four to five hours, followed by a sense of discomfort in the chest which lasted well into the following morning. During this time I examined the patient repeatedly, and her pulse was always regular. She had been a patient of mine for years, and I had always found her pulse regular. I advised operation, which was consented to. While the patient was waiting for a room in the hospital, she began to notice that her pulse

beat irregularly, but she said nothing to me about it. When I examined her the night she entered the hospital, the night before operation, I was astonished to find that her pulse was extremely irregular. When I mentioned this to her she told me for the first time that she had noticed this irregularity develop a few days before. Although it was 10:30 p. m., arrangements were made to have electrocardiographic tracings taken at once. They showed (Fig. 1) ventricular extrasystoles, arising in one focus in the right ventricle, in the subendocardial network, near the interventricular septum; very

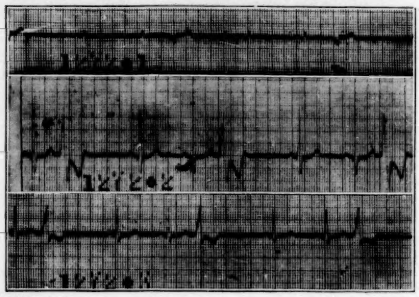

Fig. 4 (Case 3).—Condition, August 2, before operation: Every second normal beat is followed by an extrasystole arising in the right ventricle.

mild left preponderance; electrical axis 0 degrees. The heart showed no signs of myocardial ischemia or of disturbances of conductivity. The duration of a cycle was 0.60 second, corresponding to a rate of 100. The P-R interval was 0.14 second. Dr. J. C. Friedman saw the patient at this time in reference to the cardiac condition. He found her color good, with no edema anywhere. The heart examination showed the apex beat palpable in the fourth interspace, moderately strong and circumscribed. The right border was 2 cm., the left border 11.5 cm. from the midsternal line. There was a slight systolic murmur at the apex with every other beat; no murmur at the aortic. The pulse was bigeminus; every other beat an extrasystole; rate at apex, 102. There was no tenderness over the precordium. There was marked tenderness on deep pressure in the epigastrium and in the right hypochondrium. The patient showed no dyspnea or pain on exertion. He believed that her cardiac condition did not in any way contraindicate operation.

The blood pressure was 140 systolic and 88 diastolic. Blood examination showed: hemoglobin, 90; red blood cells, 4,340,000; leukocytes, 7,600. The coagulation time was three minutes and forty seconds. The urinary findings were normal.

Operation was performed, March 21. When the peritoneal cavity was opened, the liver margin and gallbladder presented. The liver was slightly enlarged and showed a thickened, rounded margin typical of hepatitis. The gallbladder was slightly enlarged, thin-walled and free from adhesions. The cystic duct at its origin curved backward somewhat on itself, so that it evidently offered some obstruction to emptying. At the time I believed this was sufficient to explain the gallbladder colics and probably bore an etiologic relation to the inflammatory changes present. The gallbladder was removed, and two small drains were inserted. They were removed on the fifth day. The gallbladder was examined histologically; the mucosa was almost entirely denuded, there being no epithelium present. The muscularis was thickened and fibrous. The serosa was edematous and fibrous.

The interesting feature of the case is related to the postoperative pulse findings. The pulse was examined daily with special reference to any change in the irregularity. The extrasystole persisted until the fourth day after operation, when the pulse was found to be entirely regular. The pulse continued to be regular during the remainder of the patient's stay in the hospital. She was discharged cured, April 2. The day she left the hospital, another electrocardiographic examination was made (Fig. 2). The tracings showed slight left preponderance, otherwise physiologic mechanism. The P-R interval was 0.16 second; the duration of a cycle, 0.64 second, corresponding to a rate of 93 a minute.

October 20, the patient returned to the hospital for another electrocardiographic examination, which showed (Fig. 3) sinus arrhythmia. The average ventricular rate was 68 a minute. The P-R interval was from 0.14 to 0.16 second. There was marked left ventricular preponderance.

In this case, therefore, the heart has remained regular during the six months that have elapsed since the operation.

CASE 3.—G. M., a farmer, aged 31, was operated on in 1920, for a duodenal ulcer. When in the hospital at that time, examination of his pulse before operation revealed that it was quite irregular at times and the pulse rate varied considerably, ranging from 80 to as low as 42 at the wrist before operation. Examination of the heart before operation showed no other abnormal findings; the boundaries were normal; there were no murmurs. He gave the typical history of a duodenal ulcer, and at operation one was found in the first portion of the duodenum. His condition at that time was not good, as he was emaciated and weak. A posterior gastroenterostomy was performed and the ulcer was treated by the Moynihan method, which consists in sewing over the ulcer by a series of interrupted stitches of silk placed at right angles to the long axis of the duodenum. At that time I did not feel that the patient's general condition was such that he could stand a resection of the duodenum with pyloric closure by the von Eiselsberg method, which was then popular. Accordingly, I tried to occlude the pylorus as thoroughly as possible by means of transverse suture of the duodenum and pylorus.

When the patient was returned to bed immediately after the operation his condition was good; his pulse was slow, 68, and of good quality. During the afternoon his pulse was irregular at times, and at these times was counted as low as 48 at the wrist. The patient was put on small doses of digitalis. The record shows that the irregularity continued three days after the operation and then was no longer noted, and consequently the digitalis was stopped. The record shows no further observations of any irregularity of his pulse during the remainder of his stay at the hospital. He was discharged cured, Aug. 5, 1920.

He remained free from all pain until 1922, when, while at work one day, he was seized with pain in the epigastrium which was so severe that he had to lie down. From that time on he suffered with this pain at irregular intervals.

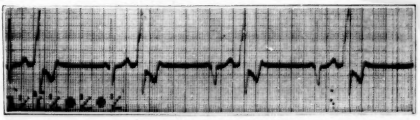

Fig. 5 (Case 3).—Condition, August 2, after the patient had been given atropin sulphate: same type of extrasystole as in Figure 4; the atropin did not produce any change in the irregularity.

When he was not working he was free from pain, but it came on when he was working. Before he was discharged from the hospital in 1920, a gastro-intestinal fluoroscopic examination showed that the pyloric closure was complete and that all food went through the gastro-enterostomy opening. When he returned in 1922, soon after the pain returned, I again examined him roentgenologically. At that time at least two thirds of the test meal escaped through the gastroenterostomy opening, while about one third or less emptied through the pylorus. I believed that the patient had a new ulcer or a recurrence of the old one in the duodenum, or perhaps a marginal ulcer at the site of the gastro-enterostomy opening. I explained this to the patient and advised that he try medical treatment for a reasonable length of time before

I would wish to advise operation. The medical treatment was without avail, and consequently he returned for operation, Aug. 1, 1923. Roentgenologic examination at this time showed the same findings as were noted a year before. The stomach outline was normal except for changes at the pylorus, evidently the result of the previous operation, and a well functioning gastro-enterostomy, the stomach emptying completely in two hours. The pulse showed definite irregularity. An electrocardiographic examination was made, August 2, and the tracings (Fig. 4) showed: duration of normal cycle,

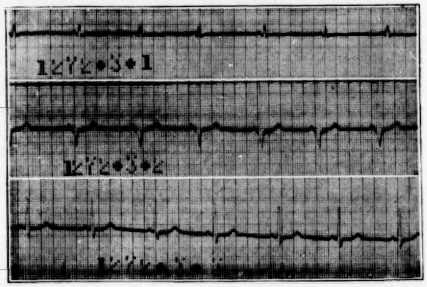

Fig. 6 (Case 3).—Physiologic curve, August 9, one week after operation.

0.96 second, corresponding to a rate of 62 a minute; P-R interval 0.14 second. Every second normal beat was followed by an extrasystole arising in the right ventricle. R_1 was of very low voltage and was notched. The heart findings were otherwise entirely negative.

Dr. W. W. Hamburger examined the patient, August 2. The patient was unaware of any cardiac disturbance; there was no palpitation, precordial distress, dyspnea on exertion, cough, or edema of the legs. The pulse was irregular, suggesting bigeminus; every regular beat was followed by a weaker beat, and then by a pause. On inspiration, the pulse became more rapid and regular with marked irregularity and slowing on expiration. The heart borders were: right, 4.5 cm. to the right of the midsternal line; left, 9.5 cm. to the left of the midsternal line. The heart tones were free from murmurs; there was no accentuation. The regular tones were followed irregularly by extrasystoles. Sometimes every regular beat was followed by an extrasystole; at other times, three or four regular beats were followed by an extrasystole. The irregularity was not influenced by right vagal pressure or by left or bilateral vagal pressure. Exercise changed the bigeminal to trigeminal arrhythmia. The liver was not enlarged or tender. The lungs were clear throughout. Dr. Hamburger's conclusions were: right ventricular extrasystoles, interpolated regularly following every one, two or three regular systoles; not influenced by vagal pressure; disappearing with inspiration; unaccompanied by subjective complaints or objective findings of circulatory failure. He suggested that the patient be given atropin to determine whether or not this would affect the irregularity. Accordingly, the patient was given atropin sulphate, $\frac{1}{60}$ grain (1 mg.) on the afternoon of the same day that the first tracings had been taken, and a curve was taken following the medication. This curve (Fig. 5) showed a bigeminy formed by a normal beat and an extrasystole of the same type as in the curve taken in the morning. The time interval between the normal beats was 1.76 seconds.

Operation revealed many adhesions, both to the parietal peritoneum and to all organs adjoining the duodenum. All these dense adhesions were divided. When the duodenum had been freed, no trace of any ulcer was to be seen on it or in the stomach, or along the jejunal loop or at the site of the old gastro-enterostomy, which was perfect, patulous, and the adjoining stomach and bowel normal. But in order not to overlook any possible ulcer, the first portion of the duodenum was incised just beyond the pylorus. No ulcer, unevenness or rough areas were seen or palpated within the duodenum or stomach. The left index finger was introduced through the gastro-enterostomy opening, which was found to be normal. No ulcer was palpable in the jejunum. There was one long and very dense fibrous adhesion that reached from the lower part of the old operative incision down to the region of the old appendectomy. This adhesion was divided.

After the operation, the irregularity of the heart continued until August 8, five days after operation, when without any medication it subsided spontaneously. The regularity continued the following day; and an electrocardiogram taken, August 9 (Fig. 6), showed a physiologic curve; the P-R interval was 0.14 second; the duration of a cycle, 1.08 seconds, corresponding to a rate of 55 a minute.

The pulse remained regular until August 17, when extrasystoles occurred at irregular intervals, about eight to the minute. It is interesting to note that this was the second day that the patient was up and about the ward. The extrasystoles did not disappear on vagal pressure. The occasional extrasystoles continued for the remaining two days he was in the hospital. He was discharged, August 19, and told to return in a month for a control electrocardiographic examination. Tracings (Fig. 7), September 22, showed right ventricular extrasystole arising from a single focus. In Lead I the extrasystoles occurred at irregular intervals. In Leads II and III they occurred after every second normal beat, giving a trigeminus. The duration of the normal cycle was 0.68 second, corresponding to a rate of 88 a minute, although this was not constant, the cycles varying from 0.76 to 0.68 second. The P-R interval was 0.12 second.

This case is interesting as it shows that for a short period following both the first operation, performed in 1920, and the secondary operation, performed in 1923, there was a temporary disappearance of the cardiac irregularity, which, however, later returned. It seems likely that the temporary disappearance of the irregularity was in some way related to postoperative factors.

CASE 4.—Mrs. R. M., aged 44, was examined, July 19, 1923, during a severe gallstone colic. She had had several previous similar gallbladder colics. The first attack occurred two

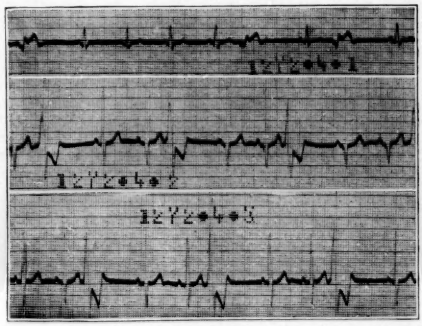

Fig. 7 (Case 3).—Recurrence of extrasystolic arrhythmia, September 22.

years before; the second attack, six months after the first; a third one followed three months later and after that the intervals became shorter, so that she had colics every few weeks. She had been told by her medical adviser that without question she had gallstones. He had treated her, too, for frequent attacks of asthma. She had been free from any asthmatic attacks for about two years, the gallbladder attacks beginning at about the time the asthma had stopped. Recently the gallbladder symptoms were accompanied by pain in the region of McBurney's point. For several weeks the pain in the region of the appendix had been more bothersome than

that in the area of the gallbladder, and was aggravated by exercise. There was distinct tenderness over the appendix, and this was even more marked then than that over the area of the gallbladder, which was very definite. I advised appendectomy and cholecystectomy. The pulse was irregular. The borders of the heart were within normal limits, and there were no murmurs. Electrocardiographic tracings taken, August 30, showed (Fig. 8) auricular extrasystoles occurring at irregular intervals, arising from multiple foci in the auricle; the P-R interval was of normal complex, 0.16 second; the average ventricular rate was 90 a minute.

At this time Dr. Ludwig Loeb saw the patient, and his findings agreed with mine. He, too, felt that the irregularity

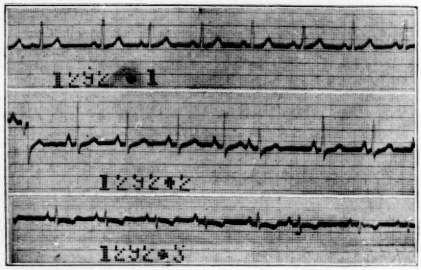

Fig. 8 (Case 4).—Auricular extrasystoles occurring at irregular intervals, arising from multiple foci in the auricle, August 30, before operation.

was merely an extrasystole and in no way contraindicated operation, and that her heart had been irregular for a long time, but he had never found any other cardiac changes.

The preoperative temperature was 98.6; pulse, 92; respiration, 22. The urine examination showed: specific gravity, 1.011; reaction, acid; no albumin, sugar, acetone, casts or bile. Blood examination showed: hemoglobin, 80 per cent.; red blood cells, 4,400,000; leukocytes, 9,200. The blood pressure was 110 systolic and 74 diastolic.

Operation was performed, September 4. The gallbladder was moderately enlarged, with walls slightly thickened and fibrous. The gallbladder contained five huge, faceted stones, each about three-fourths inch in diameter. These almost entirely filled the lumen. The gallbladder was free from adhesions, and was removed readily. The appendix was exposed by a separate McBurney muscle-splitting incision; it was considerably thickened, and showed evidence of chronic and subacute inflammation. Appendectomy was performed.

The gallbladder and appendix were both examined microscopically. The gallbladder showed the mucosa intact but edematous. The muscularis was somewhat thickened and fibrous. The serosa likewise was edematous. The mucosa of the appendix was hyperplastic and edematous. The lymph follicles were diffusely hyperplastic. The submucosa contained dense hyalinized connective tissue. The muscularis was thickened and fibrous. The serosa was edematous. In other words, the diagnosis was chronic catarrhal cholecystitis with cholethiasis and chronic catarrhal appendicitis.

The patient stood the operation well and, when returned to bed, her pulse was 120. It showed the same irregularity as was noted before operation. The pulse rate progressively diminished until by noon it ranged between 80 and 100. The patient made an uneventful recovery and was discharged, September 19. Just before discharge another electrocardiographic examination was made. These tracings (Fig. 9) showed evidence of extreme irritability, with impulses being originated in numerous foci throughout the auricle and the ventricle, but especially the auricle. At the beginning of Lead I there was auricular fibrillation, with an isolated intrasystole originating in the right ventricle. After a time there was apparently a temporary standstill of the heart, and this was followed by two groups of coupled beats consisting of a normal beat and a nodal extrasystole; this was followed by a condition of impure flutter, which soon became a pure 2:1 flutter, changing again to the impure type, responding at times to every second and at other times to every third beat.

At the beginning of Lead II the condition of coupled beats was again present, followed by a period of impure flutter. From this point on to the end of the tracing the condition was one of flutter, with 2:1 or 3:1 ventricular response. At irregular intervals, however, the flutter stopped, and there was a complete pause followed by two or more apparently normal beats, after which the flutter was again resumed.

In the third lead an occasional nodal extrasystole was seen and an occasional right ventricular extrasystole. The rate was extremely irregular, varying from 165 to 105 a minute.

There was a mild left ventricular preponderance.

The patient felt perfectly well in every way. Her pulse, examined repeatedly during the following weeks, was constantly irregular. A third electrocardiographic examination was made, October 20 (Fig. 10), and showed an extremely irritable auricle. At times the sinus rhythm was present with a rate varying from 75 to 100 a minute. The periods of sinus rhythm, however, were disturbed by auricular beats arising from at least two foci outside this sinus, and also by occasional nodal extrasystoles. The duration of the curve showed 2:1 auricular flutter. The ventricular rate was 94 a minute. In one place there was for a short period an auriculoventricular 2:1 block. There were occasional left ventricular extrasystoles. The P-R interval of the period showing sinus rhythm was somewhat prolonged, from 0.22 to 0.24 second, indicating some depression of auriculoventricular conductivity. There was a moderate degree of left ventricular preponderance.

The last three patients were all extremely neurotic. It is well known that extrasystoles occur more frequently in neurotic persons. The irritable condition of the heart muscle in this type of patient may predispose them to reflex vagus phenomena in case they develop gallbladder inflammation. In forty-eight gallbladder operations performed by me in 1923, the three reported above were the only ones in which an irregular pulse was noted. One might wonder why a larger proportion of gallbladder cases did not present this cardiac irregularity if this was due to a reflex vagus phenomenon, as I have suggested. The explanation may be that these three patients were predisposed to extrasystoles because their cardiac muscle was probably more irritable than normal. The essential point is that cardiac irregularities in themselves are no contraindication to operation in cases which otherwise present definite indications for surgical intervention because of gallbladder disease, and whose hearts do not show any other evidence of organic heart disease. On the contrary, such irregularity may be looked on as an additional indication for operation in this type of patient.

COMMENT

By Dr. Hamburger

To evaluate the significance of these cardiac irregularities occurring with disease of the upper right quadrant of the abdomen, one must know something of their physiologic nature, mechanism of development, and occurrence under other conditions. The majority of these irregularities are of the type of cardiac arrhythmia known variously as premature contractions, extrasystoles, intermittent heart beats, etc. They are among the commonest of the arrhythmias, and are said to occur at some period in the life time of most adults. They may be defined as abnormal contractions of some portion of the heart, occurring either in the auricle, ventricle or junctional tissues, contractions arising from new foci of impulse formation

(outside the usual areas and pathways of cardiac systole), occurring prior to the expected normal beat and followed by a compensatory pause. They probably represent a condition of increased irritability of that portion of the heart muscle responsible for their genesis, this irritable focus developing under such conditions as excessive smoking (nicotin poisoning), excessive tea or coffee drinking, undue exhaustion and fatigue, during or following acute respiratory infections (grip, influenza, pneumonia); from mild digitalis poisoning, conditions of increased blood pressure before, during or after pregnancy, etc. They are also found with organic heart disease in subacute or chronic myocardial degeneration and with valvular disease, particularly aortic incompetence and mitral stenosis, with or without heart muscle failure (decompensation). Associated with them one not infrequently can elicit a history of vague digestive disturbance of various kinds, belching, diarrhea, constipation, heartburn, epigastric fulness, pressure or weight occurring either during meal times or shortly thereafter. It is with the latter class of patients that these cases seem most intimately connected and most suggestive from an etiologic standpoint. One may say that these types of irregularity belong to the more benign group of pulse arrhythmia, as they are not of themselves indicative of serious or widespread heart muscle damage. On the other hand, they undoubtedly are the expression of some degree of pathologic change in the heart muscle, such as temporary poisoning (digitalis, barium, chloroform, nicotin, caffein) or mild, acute or subacute myocarditis.

So far as the rôle of the vagus and other extrinsic cardiac nerves is concerned, the evidence is not clear. Rothberger and Winterberg report that they have

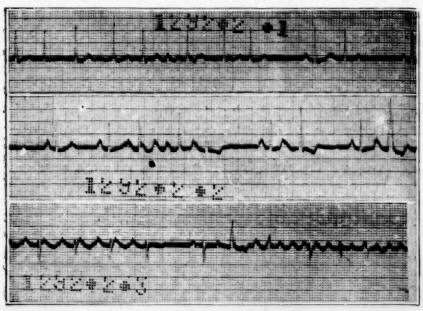

Fig. 9 (Case 4).—Evidence of extreme irritability, September 19, after operation, with impulses being originated in numerous foci throughout the auricle and ventricle, but especially the auricle; the irregularity is more marked than before the operation; it is not of a simple type (extrasystole), but consists of a mixture of irregularities, sino-auricular block, impure flutter and nodal extrasystoles, all probably evidence of increased irritability of the heart, notably the auricle.

induced extrasystoles by combined stimulation of the vagus and sympathetic nerves in experimental animals, when previously the heart has been poisoned by small doses of barium chlorid, and Levy has shown that simulation of the sympathetic or section of the vagus has the same effect when the heart is poisoned by chloroform. Weiland believes that the vagal stimulation facilitates the production of extrasystoles by raising the blood pressure.

Turning to a consideration of these particular cases, one gains the impression that the permanent disappearance of the irregularity in two cases, the temporary result in one case, and the increase in one case, is obviously related to some factor or factors connected with the operative procedure. In seeking an explanation, therefore, one must consider the effect of the anesthetic, the moderate dehydration and hemorrhage incident to the operation, and the effect of the removal of the pathologic tissue.

In the first patient the prompt cessation of the irregularity within an hour or two of the operation and the

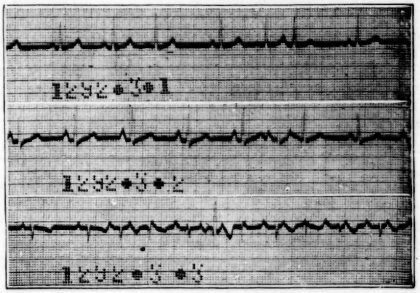

Fig. 10 (Case 4).—Persistence of irregularity, October 20, several months after the operation, similar in type to the findings recorded in Figure 9.

continuation of a normal sinus rhythm thereafter suggest that the irregularity was probably due to both reflex stimuli from the vagus or sympathetic nerves and toxic effects from absorption from the diseased gallbladder. It would be interesting to know how long the irregularity had been present prior to operation, and whether the onset of symptoms of gallbladder disease and the cardiac irregularity were coincident.

The appearance of extrasystoles in the second case during a period of an exacerbation of gallbladder symptoms while awaiting operation clearly suggests a close relationship to the gallbladder attacks as well as possibly other emotional factors. It is a little difficult to understand the persistence of the irregularity until four days after operation. An examination of the electrocardiac curves in this case (Figs. 1 and 3) shows, in addition to the disappearance of the extrasystoles, a decided change in the general character of both the auricular and the ventricular complexes; that is to say, a marked increase in the height (voltage) of all waves —specially marked in the second lead—as well as the development of certain new waves—S_2—seven months after operation. In the light of present knowledge, it would be somewhat hazardous to speculate as to the significance and interpretation of these electrocardiographic changes except to say that, in general, extremely low voltage is said to be an indication of diminished heart muscle tone, high voltage indicative of increased. The fact that this patient during the same period has greatly improved clinically in her ability to climb stairs without dyspnea, the disappearance of precordial fulness and pressure, and the generally improved health suggest that this change in the electrocardiograms may be interpreted as actual improvement in his cardiac condition. If this is true, it suggests that the removal of the gallbladder was of definite therapeutic value.

The third patient is similar, so far as the findings are concerned, in that the irregularity persisted for a few days after operation and then disappeared, a regular sinus rhythm being maintained thereafter for a short period. However, in contrast, the extrasystolic arrhythmia in this patient after each two operations recurred, so that obviously the operation did not permanently relieve them. The curves show a similar increase in the height of the waves following operation (Figs. 4 and 7).

The curves in Case 4 show the occurrence of a much more marked irregularity following operation and persisting to some extent several months thereafter (Figs. 8 and 9). This irregularity, moreover, is not of a simple type of arrhythmia (extrasystole), but consists of a mixture of irregularities, sino-auricular block, impure flutter and nodal extrasystoles, all probably evidence of increased irritability of the heart, notably the auricle. The curves show no definite increase in voltage following operation as in Cases 2 and 3.

SUMMARY

Two cases showed complete disappearance of extrasystoles following cholecystectomy; one showed temporary disappearance on two different occasions after operation, with later recurrence, and one showed at least temporary increase in irritability of the heart muscle.

The literature, so far as I am aware, makes no mention of similar instances. However, a few closely related experiences may be found. Hoppe-Seyler,[1] in discussing the radiation of pain in gallstone colic, refers to the irregularity of the pulse as occurring from the involvement of the vagus setting up a reflex on the cardiac muscle fiber. Umber [2] speaks of the involvement of the heart in gallstone colic, and says that, as a result of the severe pain, the tachycardia and irregularities, occasionally bradycardia may be seen. Külles [3] mentions the occurrence of extrasystoles at the close of an attack. Romberg fails to mention abdominal disease, in his discussion of extrasystoles, except to say that possibly distress of stomach and bowels may mechanically start them. Mackenzie mentions that "indiscretion in food and drink may readily induce these extrasystoles."

CONCLUSIONS

1. In these four cases the arrhythmia itself did not constitute a surgical contraindication. In similiar cases, indication for operation should be based, as in the past, on the general and special evidence of surgical abdominal disease. In such cases extrasystolic irregularities should not be considered a surgical contraindication.

2. Contraindication for operation, so far as the heart is concerned in such cases, must be gaged by other evidence of cardiac involvement; i. e., history of heart muscle failure (decompensation) evidence of circulatory failure, widespread endocardial and myocardial disease, angina pectoris, etc. In the future, in a given case of disease of the upper right quadrant free from prohibitive operative cardiac findings, the association of this type of arrhythmia may serve as an additional indication for surgical intervention, provided other well known causes of extrasystoles can be eliminated.

3. If a larger series of cases confirms the etiologic relationship of gallbladder disease and cardiac extrasystoles, a real advance in the etiologic diagnosis and treatment of this type of irregularity will have been discovered.

4. If a larger experience shows that these irregularities occurring in gallbladder disease may be considered evidence of organic disease of the heart muscle due to the toxic effects of the gallbladder infection, and that cholecystectomy is followed by their disappearance, an additional indication for this operation will have been demonstrated.

30 North Michigan Avenue—104 South Michigan Avenue.

1. Hoppe-Seyler: Die Krankheiten der Leber, Ed. 2, August, 1912, p. 252.
2. Umber: Erkrankungen der Leber und der Gallenwege, Handbuch der innere Medizin **3**: Part 1, p. 115.
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OBSERVATIONS ON THE TREATMENT OF SCARLET FEVER WITH SCARLATINAL ANTISTREPTOCOCCIC SERUM

PRELIMINARY REPORT *

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Dochez [1] has recently reported the production of an antiscarlatinal serum prepared by the immunization of a horse with the specific type of *Streptococcus hemolyticus* that has been found in scarlet fever by a number of observers.[2] Through his kindness, we have been able to submit this serum to clinical trial in a limited number of cases. The results so far obtained would seem to indicate that the serum may possess distinct diagnostic and therapeutic value. It seems desirable, therefore, to present a brief preliminary report on the effects observed in scarlet fever patients following (1) the intracutaneous injection of small amounts of the serum (rash extinction test) and (2) the intramuscular injection of larger amounts for therapeutic purposes.

RASH EXTINCTION TEST

In 1918, Schultz and Charlton [3] observed that an intracutaneous injection of serum from a normal human being or from a person convalescent from scarlet fever produced in patients with scarlet fever a local area of blanching which persisted until the rash had faded. Neumann,[4] Schultz,[5] Tron,[6] Mulsow [7] and others have confirmed this observation, and have shown, furthermore, that serum from acute cases of scarlet fever and from some normal persons fails to produce the blanching phenomenon. Quite recently, Mair [8] and Dochez [1] have suggested that the immunity developing during scarlet fever is antitoxic, and that the blanching of the rash by convalescent serum is brought about by neutralization of a toxin in situ. The skin test for sus-

* From the Department of Internal Medicine, Yale University School of Medicine and the Medical Service of the New Haven Hospital.
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3. Schultz and Charlton: Ztschr. f. Kinderh. **17**: 328, 1918.
4. Neumann: Deutsch. med. Wchnschr. **46**: 566 (May 20) 1920.
5. Schultz: Acta. Med. Scand. **54**: 49, 1921.
6. Tron: Riforma. med. **57**: 55 (Jan. 15) 1921.
7. Muslow, F. W.: Blanching of the Skin by Serum Injection in Scarlet Fever, J. Infect. Dis. **29**: 557, 1921.
8. Mair, W.: An Immunity Reaction in Scarlet Fever, Lancet **2**: 1390 (Dec. 29) 1923.

ceptibility to scarlet fever recently reported by G. F. and Gladys H. Dick[9] is in harmony with this conception.

Before proceeding to a therapeutic trial of the serum, it seemed desirable to determine whether the serum possessed the ability to produce a local blanching of the exanthem following intracutaneous injection. In all, twenty-three rash extinction tests in thirteen cases of scarlet fever have been made, with consistently positive results in all cases. The amount of serum injected varied from 0.02 to 0.5 c.c. The area of blanching at the site of injection (Fig. 1) varied from 2 to 6 cm. in diameter, depending on the amount of serum used. It persisted until the rash had completely faded. When the test was made within twenty-four hours after the appearance of the exanthem, there was no pigmentation or desquamation of the skin at the site of the blanched area. Fifteen control tests with equivalent amounts of normal horse serum were consistently negative. Six control tests with from 0.3 to 0.5 c.c. of a polyvalent antistreptococcus (hemolytic) horse serum were negative except for a very faint transient blanching in three cases. The antiscarlatinal serum had no effect in two cases of erysipelas.

Fig. 1.—Area of blanching following intracutaneous injection of 0.5 c.c. of antiscarlatinal serum.

THERAPEUTIC TEST

As soon as it had become evident from the rash extinction tests that the serum possessed the capacity to neutralize the rash locally in the skin, a therapeutic test seemed warranted. Thirteen cases have been treated up to the present time, nine of which were in children, and four in adults. Two were mild, five were moderately severe, three were severely toxic, two were extremely toxic with almost hopeless prognosis, and one was a late septic case with severe cervical adenitis, thrombophlebitis and streptococcus septicemia. With the exception of the last case, all were early cases, and serum treatment was given within from twenty-four to sixty hours after the onset. In all but the last three cases a single intramuscular injection of from 40 to 60 c.c. of serum was followed by a prompt and complete recovery within from twelve to twenty-four hours. The most striking effects were a critical fall of temperature to normal within from eight to twelve hours, a rapid and complete fading of the erythema in from twelve to fifteen hours with complete disappearance of the rash in from twelve to twenty-four hours, rapid improvement in the angina, and prompt disappearance of all toxic manifestations in the severer cases.

In the two extremely toxic cases, the administration of larger amounts of serum in divided doses was followed by rapid and striking improvement with complete recovery by thirty-six hours after the initial injection of serum. Brief case reports of these two cases follow:

CASE 1.—M. R., a schoolgirl, aged 6 years, admitted to the hospital, Jan. 24, 1924, about forty hours after the onset, was extremely toxic and drowsy; she was unable to talk; the face was flushed; there was marked circumoral pallor; the lips were dry; the tongue was dry; the tonsils were greatly swollen and covered with a dirty yellow exudate; there was an intense scarlatinal rash on the trunk and extremities, with edema of the skin over the chest and back. The hands were cyanotic. The temperature was 105.1; pulse, 160; respiration, 32. The leukocytes numbered 19,150. Blood culture yielded no growth. At 2:30 p. m., 45 c.c. of antiscarlatinal serum was injected intravenously; 9 p. m., 50 c.c. of antiscarlatinal serum intramuscularly. The general condition was distinctly improved; the patient was more active; the rash was fading.

January 25, at 7 a. m., 50 c.c. of antiscarlatinal serum was injected intramuscularly; at 10 a. m., there was marked clinical improvement; the patient did not appear toxic, and was mentally clear. The tonsils and faucial ring were less swollen; the rash was more faded. At 4:20 p. m., 50 c.c. of antiscarlatinal serum was injected intramuscularly. The general condition was good; the rash, markedly faded.

January 26, the patient appeared well, sitting up playing with toys. The rash had completely faded except for moderate residual pigmentation on the trunk. The patient has remained well. There have been no complications.

CASE 2.—G. M., a woman, aged 22, admitted to the hospital, Jan. 25, 1924, about twenty-four hours after the appearance of the exanthem, was extremely sick and toxic; she was delirious; the face was brightly flushed; the conjunctivae were red and watery; the lips were dry; the tongue was red and dry; the neck was swollen; the mouth opened with difficulty; the tonsils were greatly swollen and covered with a greenish yellow exudate; there was a bright red, diffuse exanthem over neck, trunk and extremities. The temperature was 103; pulse, 122; respiration, 28.

January 26, at 12:30 a. m., 90 c.c. of antiscarlatinal serum was injected intramuscularly, and at 7 a. m., 45 c.c. At 12:30 p. m., marked clinical improvement had occurred; the patient was well oriented; she did not appear toxic. The face was not flushed; the conjunctivae were clear; the edema of the neck was diminishing. The diffuse scarlet blush of the exanthem had completely faded, leaving only a punctate, papillary elevation, which was yellowish red. At 5 p. m., 50 c.c. of antiscarlatinal serum was injected intramuscularly.

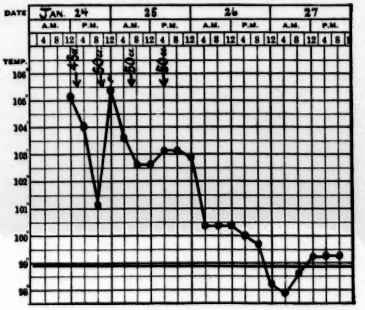

Fig. 2.—Course of temperature in Patient 1, admitted about forty hours after onset of scarlet fever.

January 27, the patient appeared well; she was bright and cheerful; the face was not flushed; the exanthem had completely gone; the tonsils were greatly reduced; the exudate was gone. The patient has remained well, without complications.

In the late septic case with thrombophlebitis, streptococcus septicemia and bull neck, a single intramuscular injection of 40 c.c. of serum was given shortly after admission on the fifth day of the disease. While this had no beneficial effect on the septic complications, its

9. Dick, G. F., and Dick, Gladys H.: A Skin Test for Susceptibility to Scarlet Fever, J. A. M. A. 82: 265 (Jan. 26) 1924.

effect on the exanthem was quite striking and instructive. By twelve hours after the administration of the serum, the rash had practically disappeared. It remained absent for approximately sixty hours and then returned as before, except in an oval area measuring 4.5 by 6.5 cm. on the upper abdomen, where an intracutaneous injection of 1 c.c. of serum had been made, and over the anterior aspect of the left thigh from the patella to the groin, this area being the site of the intramuscular

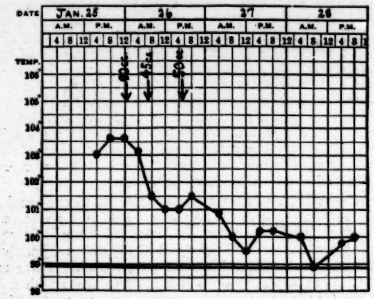

Fig. 3.—Course of temperature in Patient 2, admitted on third day of scarlet fever.

injection. Presumably, sufficient serum was retained locally in the tissues in these two areas to produce a permanent blanching, which became visible only after the general blanching effect of the absorbed serum had worn off and the exanthem had returned. The patient died on the eighth day.

COMMENT

Clinical trial of an antiscarlatinal serum prepared by Dochez by the immunization of a horse with the scarlet fever streptococcus has shown that this serum possesses the capacity to blanch completely and permanently the exanthem in a local area about the site of intracutaneous injection in patients with scarlet fever. That this is a specific property of the serum is indicated by the negative control tests with normal horse serum and with a polyvalent antistreptococcus horse serum. Failure of the serum to produce any blanching in cases of erysipelas supports this view. Although further control tests in patients with other than scarlatinal rashes must be made before a final conclusion can be drawn, it seems probable that an intracutaneous injection of the serum will be a specific diagnostic test for scarlet fever.

In addition to its probable diagnostic value, the serum would appear to possess very marked curative properties. In twelve early cases of scarlet fever, five of which were severely toxic, administration of the serum has been followed by rapid and complete recovery within from twelve to thirty-six hours. In all but the two most severe cases, a single intramuscular injection of from 40 to 60 c.c. of serum has sufficed. In the two extremely toxic cases, approximately 200 c.c. was required. Whether the serum will prove to be of value in late cases with septic complications remains to be determined. In the one case of this kind in which the serum has been tried, a single injection of 40 c.c. had no beneficial effect on the complications, even though it brought about a temporary disappearance of the exanthem.

Clinical Notes, Suggestions, and New Instruments

THE QUANTITATIVE COLLECTION OF DUODENAL CONTENTS *

PERCY B. DAVIDSON, M.D., BOSTON

While the pancreas and liver have been the objects of much experimental inquiry, the quantitative estimation of their secretions in man has been hindered by inadequate methods of collection and of reproduction in the laboratory of the physiologic chemistry involved. The introduction of the duodenal tube by Gross [1] and Einhorn [2] has shown the feasibility of intubation and the collection of contents for qualitative study, but by the ordinary tube only an unknown fraction of the total secretion for a given time can be collected. The work of McClure,[3] Jones [4] and their co-workers has brought to the clinic physicochemical methods for the study of duodenal contents which have allowed more accurate analysis of the concentration of the various constituents. It is hoped that the introduction of a satisfactory method for the quantitative collection of the contents might throw light on the normal and pathologic physiology of the organs concerned.

During the past year a duodenal tube has been used at the Boston City Hospital so modified that obstruction below the point of collection will be produced, thus preventing the passage onward of the duodenal contents. In view of the constant peristaltic activity of the duodenum and its effects on the obstructing body, the total elimination of leakage is inconceivable. For practical purposes, however, it is felt that the utilization of this tube allows quantitative collection of the duodenal contents.

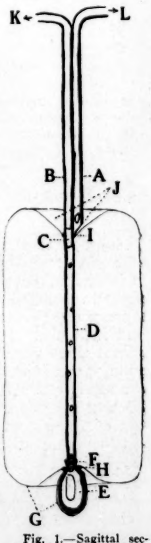

Fig. 1.—Sagittal section of end of obstructive tube: *K*, to manometer and rubber bulb for maintenance of air pressure in obstructive balloon; *L*, to syringe or siphon for removal of duodenal contents.

THE TUBE

Two rubber tubes of the grade usually used for duodenal tubes, but with an inside diameter of 2 mm. and thickness of 1 mm., are cemented, by rubber cement, and tied together, by silk thread, along their course (Fig. 1). One of these tubes (*A*) has at its end perforations sufficiently large to allow the passage of duodenal contents into the tube. The other tube (*B*) has an insert of brass tubing (*C*) to which is attached a piece of similar rubber tubing (*D*), 8.8 cm. in length, which has numerous perforations and terminates in a Rehfuss bulb (*E*), the lumen of which has been obliterated by the insertion of a piece of wood (*F*). A large rubber condom (*G*) is put over the bulb and is tied firmly by silk thread at the shank (*H*). It is again tied as well as cemented at the junction of Tubes B and D at *I*, allowing a considerable overlapping of the condom over the bulb, so that when inflated it will assume a concavity (*J*) with reference to the perforations of Tube A; this cancavity (*J*) was designed to act as a reservoir for the collection of fluid to be drained off by Tube A. The cylindric form of balloon, such as is obtained by the use of a condom, was felt to be preferable

* From the Thorndike Memorial Laboratory of the Boston City Hospital.

1. Gross, M.: New York M. J. **91**: 77 (Jan. 8) 1910.
2. Einhorn, Max: M. Rec. **77**: 98 (Jan. 15) 1910.
3. McClure, C. W.; Wetmore, A. S., and Reynolds, Lawrence: New Methods for Estimating Enzymatic Activities of Duodenal Contents of Normal Man, Arch. Int. Med. **27**: 706 (June) 1921.
4. Jones, C. M.: Blood Pigment Metabolism and Its Relation to Liver Function, Arch. Int. Med. **29**: 643 (May) 1922.

to the spherical type for two reasons: 1. The large mass in contact with the intestinal walls with approximately the same pressure relations along its course would be less stimulating to the normal myenteric reflex and to abnormal motor phenomena, as hyperperistalsis and spasticity, than the spherical with its unequal pressure relations. 2. The likelihood of leakage would be lessened, owing to the fact that at any time a number of waves of contraction and dilatation would be present about the elongated type of balloon, while only a single wave of contraction, soon followed by one of dilatation (and consequent leakage), would be present about the widest point of the spherical balloon.

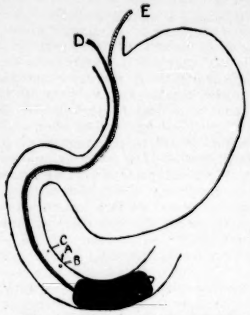

Fig. 2.—Relations of the obstructive tube to the bile and pancreatic ducts: *A*, common bile duct; *B*, major pancreatic duct; *C*, accessory pancreatic duct; *D*, air pressure; *E*, duodenal contents (by siphonage or syringe).

THE METHOD

Introduction of the Tube.—With the balloon deflated and Tube B clamped off by a hemostat to prevent the aspiration of air in the course of swallowing, the patient is instructed to swallow the tube in the fashion used for an ordinary duodenal tube. Enough tubing is swallowed to allow the tip to lie in the fundus of the stomach; the position is confirmed by fluoroscopy. The patient is then given a glass of water and instructed to lie on his right side. More tubing is given at frequent intervals under the fluoroscope, and when the end of Tube A is seen lying in the second portion of the duodenum about 12 cm. below the pylorus (Figs. 2 and 3) the desired position is obtained for the collection of the contents. The attainment of this position took from forty minutes to two hours in our group of cases. Out of more than fifty normal persons, in only one did the tube fail to pass through the pylorus; five attempts (atropin used in the fifth) were made but were unsuccessful. With the tube in position, the balloon is inflated by means of a bulb attached to a manometer until the manometric reading is from 10 to 15 mm. of mercury. Carefully, under the fluoroscope, the excess tubing is pulled out without disturbing the relations in the duodenum; the tube at its point of emergence from the mouth is attached by adhesive plaster to the cheek of the patient. This precaution cannot be too strongly emphasized, for failure to take up this slack in tubing may result in a pushing on of the balloon and alteration of the position of collection.

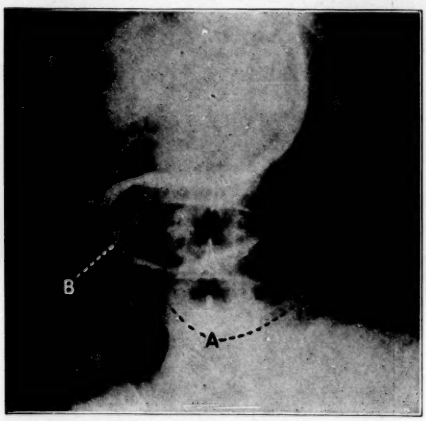

Fig. 3.—Position for collection of duodenal contents; usually the duodenojejunal junction is more angulated, so that the balloon lies partly in the duodenum and partly in the jejunum, as in Figures 4 and 5: *A*, obstructing balloon; *B*, collecting tube; *C*, pylorus.

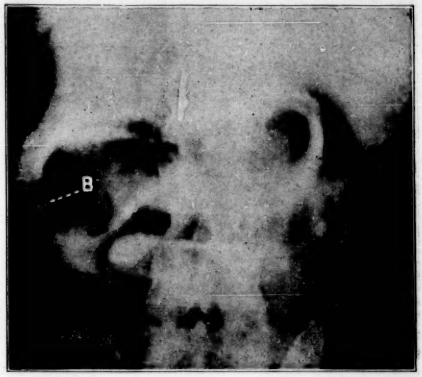

Fig. 4.—Duodenum filled with thin mixture of opaque salt, proximal to obstructing balloon; the collecting and air tubes are separated: *A*, obstructing balloon; *B*, duodenum filled with barium mixture; *C*, loop of tubing in stomach (steer-horn type).

Collection of the Contents.—With the patient recumbent and a pressure of from 10 to 20 mm. of mercury in the balloon, the collection of duodenal contents may now be started. McClure and his co-workers[5] have emphasized the desirability of siphonage, which is practical for quantitative collection. The period of collection may be varied; ordinarily, hourly periods of obstruction have been used, though periods of three hours have been used with no discomfort to the patient. Food for the stimulation of secretion may be taken by mouth or may be injected by means of a third tube, which is cemented to Tubes A and B and terminates in the stomach; this tube may also be used to drain off gastric secretion.

RESULTS

Before this tube was used in patients, the amount of pressure to which the duodenum and proximal end of the jejunum could be safely subjected was studied in the postmortem room. It was found that a pressure of 3 mm. of mercury would suffice to prevent leakage through the duodenum when allowing gravity to act on the column of fluid (6 inches long), and that a pressure of 100 mm. of mercury could be attained without rupture of the duodenum. Such a test ignores the factors that may be introduced by peristalsis. If the absence of pain during inflation and of undesirable after-effects is interpreted as evidence of the innocuous features of inflation, one can conclude that it is entirely harmless. In fact, one subject was intubated on eight different occasions without any immediate or subsequent discomfort. One patient complained of pain when inflated; fluoroscopy demonstrated here that the balloon had gone far into the jejunum, almost to the ileum, owing to our failure to take up the excess of tubing lying along the greater curvature of the stomach before beginning the collection.

In the employment of the ordinary duodenal tube, a criterion, in the absence of roentgen-ray confirmation, of the

5. McClure, C. W., and Jones, C. M.: Boston M. & S. J. **187**:909 (Dec. 21) 1922.

position of the tube in the duodenum is the immediate return of only a partial amount of the total fluid injected, owing to escape into the lower intestine. With this obstructive tube using 100 c.c. in a number of cases, invariably more fluid was recovered than was injected, showing that practically none was lost by escape into the lower intestine or by duodenal regurgitation into the stomach.

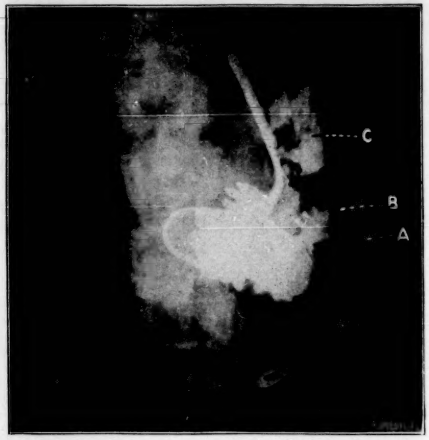

Fig. 5.—Obstruction to passage of an ingested opaque meal: *A*, obstructing balloon; *B*, duodenum filled with barium mixture; *C*, barium residue in stomach.

The injection of large amounts (120 c.c.) of an opaque salt (barium) mixture through Tube A into the duodenum shows that the balloon acts as an effective block for passage along the intestine (Fig. 4). Also an opaque meal taken by mouth is seen to be halted in its progress by the balloon (Fig. 5).

Because of variations in the amount of secretion in individual observations, it is not possible to compare results obtained with the ordinary duodenal tube and this obstructive tube. Using McClure's method of stimulation of pancreatic enzymes by the ingestion of 40 c.c. of cream and 15 gm. of barium sulphate, our average figures for like periods of time show a definite increase over those obtained in his group of like subjects. At a later time, the enzymic content and bile constituents obtained by this method will be reported.

Attention has recently been called to a tube with a spherical balloon at its end used by Baer[6] (in Switzerland) for the roentgen study of the duodenum and gallbladder. Excellent roentgenograms of the duodenum can be obtained by the use of such a tube, but the dangers of stretching an already diseased tissue, as in duodenal ulcer, or of shunting infectious material into the pancreas and liver when attempting roentgenograms of the biliary system, would seem to make it a procedure of doubtful value.

6. Baer: Schweiz. med. Wchnschr., March 1, 1922.

Surgical Judgment.—It is becoming more and more evident that the estimation of surgical skill is to be based rather on the surgeon's knowledge of the type of case on which to operate than on his method of operating. Almost anyone can, with a little practice, become sufficiently expert to perform complicated operations, but only those who have had wide experience and training can determine when such an operation should be carried out. Nearly all modern disasters of surgery are due not so much to errors of technic as to the fact that a certain operation is performed on the wrong type of patient.—A. J. Walton: *Lancet* **2**:1333 (Dec. 22) 1923.

AN ADULT HEART WITH A DEFICIENT PERICARDIUM

MYRTELLE M. CANAVAN, M.D., BOSTON
Pathologist, Massachusetts Department of Mental Diseases

The accompanying illustration shows a heart weighing 480 gm., which in situ was lying free on the left lung. No pericardium was visible except a triangular-shaped flap, which blended with the epicardium over the right side of the heart and was attached at the apex and near the emergence of the major arteries. The posterior portion of the heart was entirely devoid of pericardium. There was one other curiosity in the chest wall, namely, unequal fat deposit over the sternum; the right side scantily, the left side richly padded. It was thought that the continued beat of the uncovered heart against this portion of the chest might have interfered with the blood supply and contributed to the fracture of a rib before the patient's death.

The patient, aged 56, had general paralysis. The heart action was never attended by any known clinical irregularity, though there was no pericardial fluid. No local interference with the lung was recognizable, notwithstanding the continual intermittent drop of the heart weight on the lung. Unfortunately, no observations were registered regarding the position of the phrenic nerves.

According to Abbott,[1] this defect in the pericardium may well be accounted for by a too early atrophy of the left duct of Cuvier, due to some anomaly of the circulation of the great venous trunks, the arrested development of the pulmonary ridge resulting in a localized defect of the pleuropericardial foramen or to a more or less complete absence of the pleuropericardial septum. This atrophy would occur in the fifth week of fetal life, when the pericardial begins to be separated from the pleural column.

Adult heart with a deficient pericardium.

I have observed no defect like this before in an extensive necropsy service, numbering about 2,000, among the insane and feebleminded.

1. Abbott, Maude E.: Congenital Cardiac Disease, in Osler and McCrae's Modern Medicine, Ed. 2, **4**, 1915.

SURGICAL CONDITIONS CAUSED BY INTESTINAL PARASITES: REPORT OF TWO CASES

M. O. ROBERTSON, M.D., BEDFORD, IND.

The agency of worms in the production of appendicitis has been discussed editorially in THE JOURNAL.[1] Ravenel[2] has called attention to observations made by Desprès in 1868 and more recently by Metchnikoff. Hatori[3] reported finding *Ascaris lumbricoides* in the appendix in three appendicitis cases out of seventy-nine in which operation was performed. I saw two cases while in the Orient. Human feces are used for fertilizer in Korean gardens. The vegetables are eaten without cooking, and therefore a large percentage of the population is infested with parasites.

REPORT OF CASES

CASE 1.—A man, aged 20, came to the hospital, June 10, 1918, complaining of abdominal pain. About noon of the preceding day, when taken ill, he had called a Japanese physician, a graduate of the Japanese Government Medical School, who gave him a hypodermic injection which relieved him for the day, but he was still uncomfortable. The patient was a well developed man; the pulse was 84; the temperature, 99.2 F.; the respiration, 18. He was put to bed and given an enema. June 11, at 8 a. m., the temperature and pulse had gone up very little, but on pressure in the right lower quadrant of the abdomen he complained of pain above and to the left of the navel. He was operated on with a tentative diagnosis of appendicitis, but three small perforations were found and a cordlike mass was felt near and above the perforations. Hemostatic forceps were introduced through the perforated ileum, and three *Ascaris lumbricoides* worms extracted. The perforations were repaired and an uneventful recovery resulted.

CASE 2.—A Japanese brought a boy, aged 2 years and 3 months, to the clinic, Sept. 5, 1919. The child had been sick for several days. A few days previously he had been taken to the Japanese Government Hospital, where a diagnosis of *Ascaris lumbricoides* infestation was made and treatment prescribed accordingly. On examination it seemed evident that the child had a ruptured appendix, and pus was aspirated. He was operated on, and a perforated appendix removed. Drainage was used. The following morning when the dressing was removed, one *Ascaris* was found under the dressing. He made an uneventful but slow recovery, as is usual in pus cases.

1512½ I Street.

ANURIA IN CONGENITAL SINGLE KIDNEY RELIEVED BY URETERAL CATHETERIZATION

DANIEL N. EISENDRATH, M.D., AND FRANK WRIGHT, M.D., CHICAGO

The term "solitary" or single kidney should be applied only to cases in which a single metanephros exists in the embryo. Cases in which the two kidneys have fused on one side of the body should not be included in the term solitary kidney. They are better described as cases of crossed ectopia, the ureter of the lower of the two fused kidneys crossing to end in the opposite side of the bladder. As a rule, the ureter of the true congenital single kidney ends on the same side of the bladder as that on which the kidney is situated. Clinically it is well, however, to remember that the ureter of the opposite side may be patent for a variable distance even though the kidney is absent, and also that the ureter of the single kidney may cross the median line of the body to end in the opposite side of the bladder.

We have found fourteen reports of anuria in congenital single kidneys (as just defined) and observed another.

REPORT OF CASE

A man, aged 39, with a history of symptomless hematuria for the preceding five months, was seen during an attack of severe, left sided renal colic. When the bladder was catheterized twelve hours after the onset, no urine was obtained. The same condition was found at the end of the first twenty-four hours. Roentgen-ray examination failed to reveal any abnormal shadows due to calculi. The left kidney shadow was much larger than normal, namely, 15 cm. in length and 10 cm. in width. Cystoscopy revealed an apparently normal left ureteral meatus and a symmetrical trigon, but no right ureteral meatus. An obstruction to a No. 5 catheter was encountered in the pelvic portion of the left ureter. After passing this obstruction, blood and, later, clear urine escaped as if under tension. Indigocarmin was excreted promptly but in poor concentration from the left kidney, but none was observed (during this and three later examinations) escaping from the right side of the bladder. The anuria was completely relieved by this left ureteral catheterization, but recurred on the fourth day as soon as the catheter was withdrawn. This second anuria was relieved by left ureteral catheterization; but, owing to the blocking of the catheter, it was necessary to open the iliac portion of the left ureter on the fifth day. The ureter was found to be very thin walled and greatly distended.

The cause of the obstruction was a stricture in the pelvic portion of the left ureter. No calculus was found. Only the lower pole of the left single kidney could be felt, and only a single ureter was observed to emerge from the kidney.

During the period in which this ureteral fistula was patent, none of the urine was passed by the urethra. The patient made an uneventful recovery, and the ureteral stricture will be dilated at intervals.

1. Intestinal Worms and Appendicitis, editorial, J. A. M. A. **80**: 256 (Jan. 27) 1923.
2. Ravenel, M. P.: Intestinal Worms and Appendicitis, J. A. M. A. **80**: 343 (Feb. 3) 1923.
3. Hatori: Nav. M. A. Bull., Tokyo, July, 1922, No. 36, page 7.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

COD LIVER OIL.—Oleum Morrhuae.—For description see the U. S. Pharmacopeia and Useful Drugs.

Patch's Flavored Cod Liver Oil.—Cod liver oil containing 0.5 per cent. of essential oils as flavoring, and having a vitamin potency so that 0.002 Gm. per day is adequate to promote the growth of young albino rats.

Dosage.—Not more than 4 C. (1 fluidrachm) 3 times a day. For children not more than 2 Cc. (30 minims) 3 times a day.

Manufactured by The E. L. Patch Co., Boston. No U. S. patent or trademark.

Patch's Flavored Cod Liver Oil complies with the U. S. P. standards for cod liver oil. In addition it is tested for its content of vitamin A, and none is marketed unless 0.002 Gm. or less per day of the oil is sufficient to promote a renewal of growth in albino rats that have ceased to grow and may show symptoms of malnutrition, such as xerophthalmia, on diets adequate in every respect except for the lack of a source of vitamin-A.

VITALAIT CULTURE BACILLUS ACIDOPHILUS.—A pure culture of *Bacillus acidophilus* in vials, each containing about 7 Cc. It contains not less than three hundred million of viable organisms (*B. acidophilus*) per cubic centimeter at the time of sale.

Actions and Uses.—See Lactic Acid-Producing Organisms and Preparations (Jour. A. M. A., Sept. 8, 1923, p. 831).

Dosage.—The contents of one vial diluted with water and followed by a quantity of sugar of milk is the usual daily dose. The culture is distributed by the manufacturer only and is sent by mail. Each vial bears an expiration date.

Manufactured by The Vitalait Laboratory of California, Pasadena, Calif. No U. S. patent or trademark.

Tuberculosis in England and Wales.—During 1922, 69,259 new cases of tuberculosis were registered throughout England and Wales. Deaths from this cause claimed 42,777 victims. According to the postwar census of England and Wales, taken in 1921, the total population of the country now amounts to 37,885,000, of which slightly over 2,000,000 are in Wales.—Drolet, G. J.: *Am. Rev. Tuberc.* **8**:397 (Jan.) 1924.

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SATURDAY, MARCH 1, 1924

THE "EAT MORE" CAMPAIGNS

Has not the time arrived for calling a halt to the growing procession of slogans that pretend to bring new panaceas for health and nutritive well-being to mankind? A few years ago our peace of mind was frequently perturbed by the admonition to beware of this or that menace to health. We were told to banish the bacteria and to remember the dangers of dirt. The virtues of ventilation were sometimes presented in arguments that have long lost their cogency. To impressionable persons the world began to appear permeated with ever-present menaces that made life a continuous hygienic struggle. Of course, the purveyor of alleged safeguards to health found abundant opportunity to proclaim his wares in such an environment. The germ killers vied with one another for income-bringing popularity; and the contest is still going on. More recently, the ever busy commercial promoter of national health has begun to follow a new trend in which negation is being replaced by positive suggestions to do certain things rather than to avoid others. At almost every turn we are admonished to eat more bread, to drink more milk, to buy more raisins, to consume more apples, to use more wheat, to try some bran or add some one of a dozen items to the daily regimen, until it seems that, at least so far as his food intake is concerned, man's cup truly runneth over.

Modern advertising is characterized by creating new demands as well as by indicating how ever-present needs can be satisfied. The appeal is couched in terms of conviction. The neglected opportunities are rehearsed in forceful phrases. Their suggestions seem to carry a reasonableness that gives no chance for doubt or controversy. If a little of something is good, as we are subtly reminded, why isn't a little more even better? The user of drugs knows their limitations; the proper dose must not be overstepped. The consumer of food is rarely concerned with quantitative considerations except to the extent that they represent limitations set by the size of his purse. Nevertheless, a critical observer of current advertising tendencies may well stop to ask, in the interest of public welfare, why his fellow men should be importuned to eat more of any of the items that the billboards commend so blatantly. Many persons have a very limited tolerance for a food like raisins, so that overindulgence promptly leads to alimentary distress. The victim of a chronic colitis may well hesitate to secure his iron through the medium of a dried whole fruit—a "mixture of sugar and skins," as one caustic commentator describes it. If the advice to "drink more milk every day"—a suggestion that has, in its proper prescription, found hearty approval on more than one occasion in THE JOURNAL—were carried to the extreme of excluding other items from the diet, the result might be disastrous rather than beneficial, as milk ought to retain its supplementary dietary relationships. Indeed, a correspondent has called attention to an instance in which marked loss of weight followed the exclusive use of milk in response to the sort of pronouncement referred to.

Is overindulgence in cereals likely? Is not bread the very "staff of life?" The starchy foods wheat, corn, rice and potatoes are, indeed, the most universal sources of food fuel. Wherever the demand for energy is large, the cereals are bound to play a predominating part in satisfying the need. In view of the increase of population, it has been a favorite pastime for scientists to calculate the possibilities of the food supply of the future and to venture propheries involving the prospect of impending failures. A forecast by Sir William Crookes of the relations between the probable increase of the world's supply and demand of wheat, "the most sustaining food grain of the great Caucasian race," was widely discussed when his estimates were published at the end of the last century. He anticipated a production just enough to supply the increase of population among bread eaters till the year 1931. Yet today we are asked to "eat more wheat."

Of course, many unanticipated changes have occurred to alter the situation that Crookes foresaw. Among these has been the introduction of labor-saving devices into virtually every vocation. The farm, the dairy, the machine shop, the household, the engine room—in these and a hundred other places, the amount of actual manual labor demanded has been greatly reduced. The human muscle no longer contributes so much directly to the work of the world in the more advanced countries. The sedentary occupations have increased enormously. The factors that determine migration from rural districts to urban centers are also responsible for a decrease in manual labor to a point at which persons are beginning to seek exercise of their muscle in athletic sports or the milder muscular activities, such as walking and golf. For thousands, the advent of the street car and the automobile has almost banished muscular exercise.

In the light of these changing habits, shall we urge the sedentary salesman or the desk-ridden director or a dozen other categories of muscularly inactive persons to add to their calory intake by eating more wheat or further increasing their supply of food fuel in any way? The ranks of the obese are already too well filled, if we may believe the makers of life insurance statistics. Some one may retort, however, that the possibility remains of replacing other items of the diet by bread and other cereal foods without increasing the total consumption of foodstuffs. Change the source of the calories, but keep their quantity unchanged, he may add. If this were done it would require in practice that wheat should in part take the place of meat and milk products. Physiologically considered, this means the use of a type of meals that leave the stomach with comparative rapidity so that the sensation of satiety lasts only a short time.[1] The human subject demands meals that "stay by" him. To satisfy him with a diet abounding in cereals requires frequent meals. It is the protein and fat foods that avert the hunger pangs longest. The hard-working peasant can afford to supplement his calory intake by frequent meals in which the starchy cereals play a large part. The intellectual worker may naturally follow a somewhat different way to satiety without the danger of overeating—unless he permits the billboards to pervert his natural instincts. Left unhampered in his choice, he may prefer better foods to more food.

1. Food and Satiety, editorial, J. A. M. A. 82:632 (Feb. 23) 1924.

BRAIN WORK

As long ago as the eighteenth century, it was noticed by Lavoisier that exercise leads to an increased consumption of oxygen. Ever since that period, evidence has been accumulating to establish the fact that the bodily activities are attended with chemical changes. The liberation of energy proceeds through the transformation of matter stored in the organism. Every type of muscular work adds to the need of food to replace what has been expended in maintaining those inevitable functions that are classed in the expression basal metabolism. The increment of loss through vigorous exercise may amount, in terms of energy, to several hundred calories an hour. Besides the production of waste heat when muscular work is done, there may arise a sense of fatigue.

The feeling of weariness is likewise an accompaniment of mental application, so that it has been quite natural to inquire whether "brain work" also gives rise to peculiar metabolic products and makes increased demands on the energy exchange. Most of us are inclined to assert that mental activity is "hard work"; that it often exhausts us as much as muscular work does. Is the calory cost as great? The extensive investigations of Benedict and Carpenter with the respiration calorimeter in this country are commonly quoted in reply. A group of students took bona fide examinations in a respiration chamber which was at the same time a calorimeter. Each man took his turn, spending three hours over his paper and experiencing the usual anxiety and strain attendant on such a proceeding. On other days, each subject spent a like period in the chamber, engaged in copying printed matter. Thus it was possible to compare in about twenty cases the metabolism of a period of brain work with the metabolism during a time in which similar muscular movements were made, but in the absence of conscious effort. There was no distinct difference. Stiles [1] has recalled a similar result obtained more recently in the case of proofreaders. These persons, he argues, certainly concentrate to good purpose, and it will be agreed that their work is exacting. But it is pursued by the adept with a minimum of postural strain; in fact, it is consistent with very complete relaxation. Waller and de Decker found no change in the metabolism when their subjects entered on or discontinued work.

Bearing in mind that the nervous tissues of the body comprise less than one twenty-fifth of its mass, one could scarcely expect that even considerable changes in the metabolism of these specialized structures would easily find expression in the sum total of the chemical changes of the entire body. Nevertheless, there are indirect evidences—indications by analogy—that the life of the brain has a very vigorous metabolism of some kind that involves oxygen. Its blood supply is large, and there are biologic provisions to keep it abundant. Despite the failures to detect differences in the total heat output of the body as a result of active intellectual work, Mathews has not hesitated to assert that the activity of the brain and nerve tissues in general is very dependent on oxygen, and that they produce large amounts of carbon dioxid, the amount of which runs, in general, parallel to the state of activity of the tissue.

At the University of Hamburg, Knipping [2] has directed his attention to other possible evidences of metabolism in mental work by examining the blood under varied conditions of intellectual activity. His observations lead him to the conclusion that phosphoric acid is liberated in unusual amounts when the mind is more active. The increments may be sufficient to affect the acid-base equilibrium of the blood. This can be corrected by inducing a secretion of acid gastric juice, such as is called forth by a good meal. Hence, we are told by the German investigator, it is not more calories but rather a secretion-promoting type of regimen that the brain worker needs for his welfare.

1. Stiles, P. G.: Nutritional Physiology, Philadelphia, W. B. Saunders Company, 1922.
2. Knipping, H. W.: Respiratorischer Gaswechsel, Blutreaktion und Blutphosphorsäurespiegel bei geistiger Arbeit, Ztschr. f. Biol. 77:1-165, 1922.

THE ALLEGED BIOLOGIC RADIOACTIVITY OF POTASSIUM SALTS

Every beginner in the study of biology soon learns that pure water is not an ideal medium in which to bathe living tissues. He comes speedily to the realization that the isolated cells promptly die in an environment of pure water, and that the latter is not compatible with the blood that courses in the circulation of the higher forms of animal life. Many of these cells are so constituted that their very existence, to quote a recent writer,[1] is dependent on the maintenance of the osmotic pressure of the surrounding medium within very narrow limits of variation. This is conspicuously true of the colored corpuscles of the blood. The importance of isotonicity in the solutions applied to living tissues has come to be generally recognized. When a cut is exposed to either water or strong salt solution the sensation is likely to be one of irritation, whereas physiologic sodium chlorid solution, that is, an isotonic solution of common salt, is decidedly more soothing to delicate surfaces. Physiologic sodium chlorid solution, often improperly termed "normal" salt solution, has accordingly acquired a large importance in practical medicine.

For the continued performance of functionally active tissues, an environment of an isotonic solution of sodium chlorid does not by any means represent the ideal. Sidney Ringer demonstrated, forty years ago, that the osmotic pressure of a cell medium is not the only attribute requiring regulation. His classic experiments on the heart of the frog have shown that, for an efficient artificial saline solution to replace blood, it is not sufficient to employ sodium chlorid alone in isotonic concentration, but that the presence of salts of potassium and calcium is indispensable in addition. It is the cation that is the necessary part of these salts. To Jacques Loeb we owe in large measure a clearer conception of the significance of such mixtures. They represent physiologically "balanced" solutions in which the antagonistic action of certain ions prevents their individual toxic effects. Such solutions are, as Loeb[2] long since pointed out, primarily protective rather than nutritive in function.

The Utrecht physiologist Zwaardemaker has introduced a new conception in recent times into the consideration of the physiologically balanced solutions. He has pointed out that among the elements sodium, calcium and potassium, the ions of which enter into the Ringer solution or its various more modern modifications, potassium alone is radioactive; indeed, it is the only radioactive element in the body. The substitution of various other radioactive elements, such as uranium, thorium and radium, in equiradioactive proportions for potassium, permits the functions protected by Ringer's solution to proceed as usual, whereas in their absence they soon cease. The announcement awakened great interest everywhere in that it introduced a new conception, that of essential biologic radioactivity, into physiologic thought. The cogency of Zwaardemaker's statements has been shattered, however, by several biologists, most recently by another Dutch investigator, the physiologist Hamburger[3] of Groningen. He has shown that potassium is not needed in Ringer's solution, provided the other ions are properly "balanced"; that is, if the quantitative adjustments between the physiologically antagonistic calcium and sodium ions are properly made. The radioactive factor thus is eliminated, and with it all justification for unsubstantiated hypotheses in a field that easily lends itself to quackery.

1. Mitchell, P. H.: General Physiology, New York, McGraw-Hill Book Company, 1923.
2. Loeb, Jacques: Dynamics of Living Matter, New York, 1906.

ALTITUDE AND RED BLOOD CORPUSCLES

The study of the circulation has been greatly enhanced by the demonstration that not only the arterioles but also the capillaries and venules function actively and must therefore participate in vascular reactions.[4] From the standpoint of technic, the revival of Lombard's method of microscopic observation of the skin under direct illumination through the oil-covered surface has made changes in the peripheral capillaries directly visible, and rendered possible the reinvestigation of many important problems concerning these, the smallest, blood vessels. Some of the local effects of chemical substances, in particular, have been elucidated in this way. Observations with the skin microscope, forms of which are rapidly finding a place in clinical laboratories, are destined to raise anew certain questions that have supposedly been answered on the basis of indirect data. For example, Liebesny[5] of the physiologic institute at the University of Vienna has observed a change in the appearance of the cutaneous capillaries when persons travel from a low altitude to places located at considerable heights with corresponding lowered barometric pressures. Under ordinary circumstances, the smallest vessels are homogeneously filled, and the blood streams through them with considerable rapidity; at high altitudes the flow seems to be considerably impeded, the vessels presenting a beaded aspect, owing to the apparent agglutination or sedimentation of the corpuscles.

It is generally recognized that one effect of life at high altitudes is to cause an increase in the number of erythrocytes per cubic millimeter of blood, and an increase in the percentage of hemoglobin. For example, the red corpuscles vary at sea level between 4.5 and 5.4 millions per cubic millimeter; at Colorado Springs (altitude, 6,000 feet), between 5.5 and 6.3 millions;

3. Hamburger, H. J.: Die Zwaardemakersche biologische Radioaktivität, Biochem. Ztschr. **139**: 509 (July) 1923.
4. Reviews of the subject are given by: Hooker, D. R.: Evidence of Functional Activity on the Part of the Capillaries and Venules, Physiol. Rev. **1**: 112 (Jan.) 1921. Krogh, A.: The Anatomy and Physiology of the Capillaries, Yale University Press, 1923.
5. Liebesny, P.: Der Einfluss des Höhenklimas auf den Kapillarkreislauf und die Beziehung des letzteren zu der in Höhenlagen beobachteten Blutkörperchen- und Hämoglobinvermehrung, Schweiz. med. Wchnschr., 1922, No. 18.

and on Pike's Peak (altitude, 14,110 feet), between 6 and 8.2 millions. The percentage of hemoglobin at Colorado Springs varies from 105 to 118; average, 110; and on Pike's Peak, from 120 to 154; average, 144, considering the normal at sea level as 100. The various views as to the mechanism of the changes have been divided by Schneider [6] into three main classes: 1. In the first class are those theories which insist that the increase in hemoglobin and red corpuscles is real and not merely relative; two possible explanations of the increase have been proposed: (*a*) that the increase is due to increased activity of the blood-forming organs, resulting in an increase in the hemoglobin and red corpuscles; (*b*) that the increase is due to a lengthening of the life of the corpuscles. 2. In the second class are the concentration theories, according to which the increase in hemoglobin and red corpuscles per unit volume is due to increased concentration of the blood. According to this view, the increase in both is only apparent, and there is no increase in the total number of red corpuscles or in the amount of hemoglobin in the body. 3. It has been held that the increase in hemoglobin and corpuscles is due to unequal distribution of the red corpuscles. They are thought to be more numerous in the blood of the capillaries and smaller vessels, and less numerous in the large vessels.

The studies of Liebesny revert to the last view, which has generally been regarded by American physiologists as untenable. Blood specimens for examination are usually taken from peripheral capillaries. If, as the skin microscope seems somewhat indirectly to indicate, the blood there contains a concentration of red cells, obviously the count of the latter may be misleading so far as it represents a local condition rather than a general enrichment of the blood stream in oxygen carriers. Somehow, in science, many debated questions that seem to be answered manage to reassert themselves whenever new experimental evidence bearing on them comes to light.

Current Comment

THE SYMPTOMS OF EPIDEMIC ENCEPHALITIS

The form in which epidemic encephalitis may appear in some states in the spring is a cause of apprehension. This peculiar malady seems to change its symptoms from year to year. In 1919 and 1920, the predominating symptoms were drowsiness, ophthalmoplegia, pupillary and bladder changes, and headaches. In 1921, they were profound toxemia, cranial nerve palsies, delirium, headaches, and neuralgic pains in the limbs. In 1923, at least in Minnesota, there seemed to be an entirely new set of symptoms. In one group of cases, myoclonic twitchings of the face, limbs or trunk predominated, and in another group of cases, mental confusion with headaches. It is interesting to note that the pathologic findings in the brain and spinal cord were virtually the same in these different symptom groups. Hammes [1] reminds us that more than 52 per cent. of deaths from this disease in the last four years in Minnesota occurred in the first four months of the year, and that the death rate increased in all but one of these years. Contrary to opinion, it appears there was a marked exacerbation last spring in Minnesota, which caused 134 fatalities. If the mortality rate assumed (17 per cent.) is correct, there must have been within the state at least 1,700 cases of moderate or marked severity. Minnesota, however, does not seem to have suffered from this disease more than many other states.

THE ARTIFICIAL IMPORTATION OF MALARIA INTO DENMARK

Considerable concern has recently been shown by the Danish medical authorities with regard to the therapeutic exploitation of malaria. It may be that the inoculation of the germs of malaria may have a beneficial influence on the course of certain diseases of the central nervous system, but it is obvious that such therapeutic experiments must not be conducted under conditions permitting the accidental dissemination of malaria to the healthy members of the community. It is feared that if the mosquitoes in Denmark become infected by the subjects with artificial malaria, and convey the disease to other persons, the risk of malaria becoming endemic may be considerable. For these reasons the Danish board of health has issued a circular, dated Dec. 20, 1923, to the physicians in Denmark, stating under seven headings the measures to be taken to prevent mischief in this direction. 1. Inoculation with malaria must be attempted only in those hospitals given a special license for this procedure. The board of health may, however, issue licenses for this treatment to be given outside hospitals. 2. When a patient develops an attack of malaria after an inoculation, he must be confined to a mosquito-proof room, which should, as far as possible, be in the upper story of a hospital. 3. The inoculated patient must not walk abroad at those times of the day when the chances of being stung by a mosquito are greatest. 4. The patient must not be discharged from the hospital till he has undergone a systematic course of quinin, and examinations of the blood, undertaken twice a week for three weeks, have shown him to be free from the parasite of malaria. 5. In connection with every patient treated in this manner, the physician in charge must fill up a notification form conforming to the laws dealing with infectious diseases, and must send it to the health medical officer in whose district the treatment is undertaken. 6. When a patient who has undergone this treatment is discharged, a notice to this effect must be given to the health medical officer of the district to which the patient goes immediately after discharge, the patient's name, age, position, address and date of discharge being given in this notification. 7. For the future, the weekly notifications of cases of febris intermittens must state whether or not the patient notified has undergone this treatment. It will be seen from these regulations that the Danish board of health is fully alive to the dangers

6. Manual of Medical Research Laboratory, War Dept., Air Service, Washington, D. C., 1918, p. 14.

1. Hammes, E. M.: Review of Epidemic Encephalitis in Minnesota from 1919 to 1923, Minnesota Med. 7: 106 (Feb.) 1924.

of wholesale, uncontrolled, artificial inoculations of human beings with malaria, and is determined that, whatever the fate of these persons may be, other members of the community shall not be exposed to unnecessary risks. It would, indeed, be a tragedy, were this therapeutic advance—if it is an advance—to be the cause of malaria becoming endemic in countries where it has heretofore been unknown among the indigenous inhabitants.

JACQUES LOEB

The untimely death of Dr. Jacques Loeb, head of the division of experimental biology at the Rockefeller Institute for Medical Research, has taken away one of the most resourceful modern investigators in the group of sciences underlying the art of medicine. He early developed a profound interest in fundamental problems. One writer has remarked that Loeb's life work centered in the pursuit of the knowledge of the real distinctions between living and dead matter. At the age of 30, Loeb had already propounded his theory of "tropisms," or the reaction of organisms to the forces in their environment. This was a part of the mechanistic conception of biologic phenomena that he championed and applied in many domains with skilful logic and the cogency supported by a wealth of experimental and chance observations. In his psychology of the lower forms of life, Loeb attacked the hypothesis of purposeful behavior, replacing this by explanations based on purely mechanical and chemical reactions. Everywhere he searched for mechanisms that responded to known facts in nature; consequently he had little use for what has sometimes been designated as the vitalistic conception of physiologic functions. Loeb's "Comparative Physiology of the Brain" and "The Dynamics of Living Matter," for example, marked their author as a pioneer who did not hesitate to follow new paths in science and who was in many respects ahead of his times. The conception of "physiologically balanced" solutions representing the ideal environment of living cells was greatly fostered by this investigator soon after he was transplanted to American soil, where successively at Bryn Mawr, Chicago, California and the Rockefeller Institute laboratories, not forgetting frequent excursions to the great Marine Biological Laboratories at Woods Hole, he worked incessantly for more than three decades. Loeb's striking studies on artificial parthenogenesis and the unusual experiments that he performed in activating ova to development by purely physicochemical means became widely known. The popular appeal of the successful producing of "fatherless frogs" served to awaken the layman's interest in and respect for biologic research. More recently, Loeb's attention had been directed to the most important structural components of cells, the proteins, which he investigated from the standpoint of the physical chemist. It is probably not unfair to say that Loeb, by his studies of recent date, was helping to give a new orientation to much of the vague "colloid" behavior of proteins. Also the explanation of the properties of physiologic membranes was the subject of intensive research. Science and medicine, in particular, have lost a devotee of the finest type—one who never abandoned the highest ideals of independent research or yielded them in the slightest detail to the insistent clamor of a world demanding immediately "practical" contributions.

Association News

THE CHICAGO SESSION

The Scientific Exhibit

The Committee on Scientific Exhibit calls attention to the fact that all applications for the Scientific Exhibit, Chicago Session, must be in the hands of the director before April 4. Any who desire an application blank may obtain it by sending a request addressed to Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

From the applications received so far, the exhibits at the Chicago Session promise to be of great scientific value and interest. One of the outstanding plans is that of the Committee on Scientific Exhibit of the Chicago Medical Society: a comprehensive exhibit on morbid anatomy in which fresh specimens, obtained from local hospitals, will be demonstrated by various pathologists.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Society News.—At the annual meeting and banquet of the Yavapai County Medical Society at Prescott, January 8, Dr. Rembert H. Thigpen, Jerome, was elected president; Dr. John W. Flinn, Prescott, vice president, and Dr. Clarence E. Yount, Prescott, secretary-treasurer.——Dr. Winfred Wylie, head of St. Joseph's Hospital staff, Phoenix, spoke on the "Proposed Act Authorizing the Court to Appoint Medical Experts," before the Maricopa County Medical Society, January 5.

ARKANSAS

Dr. Bradley Resigns.—Dr. Frances Sage Bradley, Little Rock, has resigned as director of the bureau of child hygiene of the Arkansas State Board of Health.

CALIFORNIA

Smallpox Epidemic.—Smallpox has become epidemic in southern California and is prevalent in sections of Los Angeles and vicinity, it was recently announced by the state health department.

Sponsors of the Title.—Declaring that the term "doctor" has no significance in modern times, the state board of medical examiners has opened a campaign to ban from California the abuse of this title. Dr. Charles B. Pinkham, executive officer of the board, states that for more than six centuries the prefix "Dr." has been employed by witches, teachers, dentists, ministers, drugless healers, physicians and surgeons, veterinarians, chemists, chiropractors, and mixers of hair ointments, and that the recent investigation of quacks in the profession emphasizes the abuse of the term. The board aims to secure legislation that will safeguard the public.

Society Elections.—At the annual meeting of the Alameda County Medical Society Dr. Charles L. McVey was elected president and Dr. Pauline S. Nusbaumer, secretary-treasurer.——Drs. George N. Drysdale and George J. Hall, were elected president and secretary-treasurer, respectively, of the Sacramento Society for Medical Improvement at the annual meeting.——At the annual meeting of the San Francisco County Medical Society in that city, Dec. 11, 1923, the following officers were elected for the ensuing year: president, Dr. Emmet Rixford; vice presidents, Drs. Joseph H. Catton and

Mary E. Mentzer, and secretary-treasurer, Dr. John H. Woolsey.——Santa Barbara County Medical Society elected Dr. Samuel Robinson president at the annual meeting, January 14.

COLORADO

Memorial to Physician.—At a recent meeting of the El Paso County Medical Society, at Colorado Springs, a movement was launched to name one of Colorado Springs' new high schools as a memorial to Dr. S. Edwin Solly, a graduate of the Denver College of Medicine and former president of the state medical society, and the American Climatological Association, who died in 1906.

Personal.—Dr. George P. Lingenfelter has been appointed assistant professor of dermatology and syphilology at the University of Colorado School of Medicine, Denver.——Dr. A. J. Monahan has been appointed director of the newly organized Pueblo County Health Unit.——Dr. William P. Hunnicutt, Colorado Springs, has accepted a post as assistant superintendent of the State Hospital, Larned, Kan.——Dr. William Senger is the new president of the Pueblo County Medical Society.

ILLINOIS

Physician Fined.—According to reports, Dr. William H. Fields, Cairo, was fined $300 in the federal court, February 8, when he pleaded guilty to violation of the Harrison Narcotic Law.

Candidates' Opinion Wanted.—The McLean County Medical Society invited local candidates for election to the legislature to be present at their meeting in Bloomington, February 12, to express their opinion on questions which affect the medical profession.

Adams County Medical Society.—Dr. William Engelbach, St. Louis, addressed the society, January 16, on "Osseous Development and the Results of Treatment of Ductless and Gland Disorders."——On February 11, there was a joint meeting with the Adams-Hancock County Dental Society, with a paper on "Focal Infection from the Dental Viewpoint," by LeRoy H. Wolfe, D.D.S., Quincy, and "Focal Infection from a Medical Viewpoint," by Dr. Orie F. Shulian, Quincy. ——Dr. Edward H. Ochsner, Chicago, will address the society, March 10. His subject will be "Symptomatology and Treatment of Chronic Fatigue Intoxication."

Personal.—Dr. Howard C. Hoag has been appointed city physician of Waukegan to fill the vacancy caused by the death of Dr. John C. Foley. Dr. Hoag formerly resided in Chicago. ——Dr. Wilson K. Dyer has been appointed assistant superintendent of the Kankakee State Hospital.——Dr. Don W. Deal, Springfield, was the guest of honor at the meeting of the McLean County Medical Society in Bloomington, February 12, when he gave an address on "Surgery of the Chest." ——Dr. Wilfred Grenfell, medical missionary to Labrador, gave an illustrated lecture at the college auditorium, Monmouth, February 19.——Dr. Charles L. Nelson, Belle Plaine, Iowa, has gone to Urbana to assume charge of a local hospital.

Public Health News.—The Illinois Department of Public Health has sent out a circular which outlines the duty of those having knowledge of the existence of contagious disease. The following named diseases are declared, therein, contagious, infectious and communicable: actinomycosis, anthrax, Asiatic cholera, botulism, chickenpox, dengue, dysentery (amebic), dysentery (bacillary), epidemic (lethargic) encephalitis, erysipelas, favus, German measles, glanders, hookworm disease, influenza, leprosy, malaria, measles, cerebrospinal meningitis, tuberculous meningitis, mumps, ophthalmia neonatorum, paragonimiasis (endemio hemoptysis), pellagra, plague, pneumonia, poliomyelitis, puerperal fever, rabies, Rocky Mountain spotted fever, scarlet fever, septic sore throat, smallpox, tetanus, trachoma, trichinosis, tuberculosis, continued fever (more than seven days), paratyphoid fever, typhus, yellow fever, venereal disease, chancroid, gonorrhea, syphilis and whooping cough.——More than 5,000 stillbirths were reported to the state health department in 1923. Heart disease caused the death of more than 12,000 people in Illinois last year according to official statistics. This number is more than 4,000 greater than the number who died of cancer.

Chicago

Chiropractor Guilty of Forgery.—According to reports, Cornelius E. Wyksel was fined $500 and sentenced to three months' imprisonment, February 19, when he was found guilty of forging his name on a diploma from McGill University Faculty of Medicine, Montreal, Canada, and using it to practice without a license.

Personal.—Dr. H. Douglas Singer, professor of psychiatry, University of Illinois Medical School, gave an address before the Rock Island Medical Society, February 12, at Rock Island. ——Dr. Lewis Pollock, assistant professor of neurology, Northwestern University Medical School, spoke on "Sequelae of Epidemic Encephalitis" before the Elgin Physicians' Club in that city, February 14.

Society News.—At a meeting of the Chicago Medical Society, February 20, Dr. Daniel N. Eisendrath gave an illustrated lecture on "The Value of Pyelography in Abdominal Diagnosis."——David P. Philips, Jr., Joliet, Ill., gave an address on "Psychiatric Problems in a Penitentiary," by special invitation, before the Chicago Neurological Society, February 21.——The Chicago Council of Medical Women met, February 26, when a symposium on the treatment of syphilis was given. Dr. Anna E. Blount presided.——A meeting of the Institute of Medicine of Chicago was held, February 22, at the City Club. Among the speakers were: Dr. Katherine M. Howell, Dr. Oscar T. Schultz, Harold L. Weatherford, Margaret M. Kunde, Ph.D., Dr. Laurence E. Hines, I. S. Falk, Theodore E. Boyd, Ph.D., and Thomas P. Hughes.—— A joint meeting of the Chicago Medical Society and the Illinois Hospital Association was held, February 27. The following subjects were discussed: "Illinois Hospital Association; Its Aims, Accomplishments and Relation to the Medical Fraternity," "The Duty of the Physician Toward the Hospital" and "Advantages and Disadvantages of the Closed Hospital."——A luncheon under the auspices of the three Chicago chapters of the Alpha Omega Alpha Honorary Fraternity will be served at the University Club, Chicago, Tuesday, March 4, at 12:30, to which all members of the society attending the annual Medical Educational Conference are invited.

IOWA

Society News.—Dr. Joseph C. Langan and Dr. Herbert R. Sugg were elected president and secretary-treasurer, respectively, of the Clinton County Medical Society at the recent annual meeting.——At the annual meeting of the Des Moines County Medical Society the officers were all reelected as follows: president, Dr. James S. Cooper; vice president, Dr. George J. Pearson, and secretary, Dr. George H. Steinle. ——The Johnson County Medical Society elected Dr. George C. Albright president for the ensuing year and Dr. Wesley E. Gatewood, Jr., secretary-treasurer.——Dr. Howard E. Thompson was elected president of the Dubuque County Medical Society at the annual meeting and banquet; Dr. Leo A. Goodman was elected vice president and Dr. Albert L. St. Germain, secretary.——At the second annual meeting of the Twin Lakes District Medical Society (composed of Calhoun, Carroll, Green, Pocahontas, Sac and Webster counties) in Rockwell City, February 14, Dr. Dennis R. W. Crile, Ochsner Clinic, Chicago, gave an address on "Fractures."——At a meeting in Cherokee, February 10, the Four County Medical Association was organized for physicians residing in Ida, Buena Vista, Plymouth and Cherokee counties. Dr. Fisher B. E. Miller of the Cherokee State Hospital was elected president and Dr. Martin J. Joynt, Le Mars, secretary-treasurer.

KENTUCKY

Annual Cancer Campaign.—The cancer campaign being conducted in Kentucky for one month, closes with "Cancer Week," which begins March 9. Dr. Irvin Linderberger, Jefferson County health officer, is chairman. Other Louisville physicians who are active in the campaign are Dr. Louis Frank, ex-president of the Kentucky State Medical Association; Dr. Irvin Abell, Dr. George A. Hendon and Dr. John R. Wathen. Addresses are being given at clubs, churches, schools and parent teacher associations. The American Society for the Control of Cancer is behind the campaign.

LOUISIANA

Personal.—Dr. John H. Cooper, Alexandria, has been appointed superintendent of the new Louisiana Masonic Home for Orphans for which the contracts have been awarded. The first building will be erected at a cost of $145,000.

New State Health Board.—In the reorganization of the state health board Governor Parker, February 11, named eight new members. The law provides that the president and five

members must be registered physicians, graduates of a recognized college of medicine, and shall have practiced their profession or engaged in health work at least ten years preceding appointment. Physicians appointed are: Camille P. Brown, New Orleans; Joseph T. Abshire, Abbeville; J. Ernest Brown, Lake Providence; Theophilus T. Tarlton, Grand Coteau, and Walter F. Couvillion, Marksville. Others appointed are Eugene H. Daste, druggist of New Orleans; Mrs. L. C. McVoy, a teacher, and Frederick Rarzburg, a Shreveport dentist. Dr. Oscar Dowling's term as president of the board does not expire until Aug. 29, 1925.

MASSACHUSETTS

Chiropractor Convicted.—William Chase, a chiropractor of Wakefield, was found guilty of practicing medicine without a license in the Malden court, January 8, and fined $100, according to reports.

Dr. Eliot's Ninetieth Birthday.—A committee has been appointed to arrange a public tribute to Dr. Charles W. Eliot, president emeritus of Harvard University, Boston, on the occasion of his ninetieth birthday, March 20. Dr. Eliot, who was president of the university from 1869 to 1909, received the honorary degree of M.D. from Harvard in 1909.

Liquor Permits Revoked.—Prohibition authorities announced that the liquor permits of fifty-three physicians of Massachusetts, eighty-eight druggists and three manufacturers were revoked in the last year.——The state board of registration in medicine announced, January 30, that the license of Dr. Fred M. Richmond, Everett, was suspended for two weeks following a charge of violation of the prohibition law.

Tuberculosis in School Children.—A ten year campaign to arrest tuberculosis in children was launched, January 21, when Health Commissioner Eugene R. Kelley filed with the legislature a special report, which recommends the expenditure of $500,000 and the examination of more than 200,000 school children in the state. Dr. Kelley estimates that there are about 9,000 school children in Massachusetts who have tuberculosis unknown to themselves or their parents.

Tuberculosis Association Meets.—The annual meeting of the Boston Tuberculosis Association was held January 23. Dr. John B. Hawes, 2nd, was elected president for the ensuing year; Dr. James J. Minot, vice president, and George S. Mumford, treasurer. It was announced that the sale of Christmas seals realized $40,000 in 1923 against $25,000 the previous year. Dr. David Russell Lyman, director, Gaylord Farm Sanatorium, Wallingford, Conn., was the principal speaker of the afternoon.

MICHIGAN

Dr. Parnall Resigns.—Dr. Christopher C. Parnall, superintendent of the hospital and professor of administrative medicine at the University of Michigan Medical School, Ann Arbor, has resigned, effective, June 30. His successor has not yet been appointed.

MINNESOTA

Personal.—Prof. Charles Sheard, Ph.D., editor of the *American Journal of Physiological Optics* since its founding, has accepted the position of chief of the section of physics and bio-physical research at the Mayo Clinic, Rochester.——Dr. Charles E. Caine, Morris, has been reappointed a member of the state board of medical examiners.——Drs. Howard R. Weirick, Hibbing, and Neill M. Watson, Red Lake Falls, have been reelected members of the state board of health.

MONTANA

Health Officer Elected.—Dr. F. Lambert Darland, Froid, has been appointed physician of Roosevelt County to succeed Dr. Arnon C. Spooner, Bainville, who resigned recently.

NEVADA

Personal.—Dr. Albert F. Adams, Reno, has been appointed county physician to succeed Dr. Albert R. Da Costa, Jr., resigned. This consolidates the position of county physician and city physician of Reno.

Elko County Medical Society.—At the annual meeting of the association recently, Dr. Amos C. Olmstead, Wells, was elected president for the ensuing year; Dr. John R. Eby, Elko, vice president, and Dr. John E. Worden, Elko, secretary-treasurer. The society voted to invite the state medical association to meet at Elko this year.

NEW JERSEY

Eugenics Bill Passes.—The house, February 19, passed the De Lorenzo assembly bill providing for medical examination of all males who apply for marriage licenses, by a vote of 32 to 15. Amendments to include women within the provisions of the bill and to impose a fine of $100 on physicians who furnish false certificates were rejected.

Health Officers' Meeting.—At the annual meeting of the New Jersey Health Officers' Association in Trenton, February 15, Joseph C. Saile, Bloomfield, was elected president to succeed Dr. Harvey S. Brown, Freehold; J. Leclere Snedeker, health officer of Burlington, vice president, and N. J. Randolph Chandler, Plainfield, secretary-treasurer. The association indorsed several new health bills that are before the legislature, including the Blackwell measure authorizing boards of education to employ registered nurses; Senator Woodruff's bill providing for the pensioning of health officers, aged 65 years, after twenty-five years of service; the bill authorizing the sterilization of certain afflicted persons; the bill appropriating $30,000 for educational work in combating tuberculosis and the bill allowing local boards to disclose the names of persons having communicable diseases.

NEW YORK

Trichinosis in New York.—Three outbreaks of trichinosis have recently been reported to the state health department; one of these occurred in Rochester, one in Yonkers, and one in Patterson. The Rochester epidemic consisted of seven cases in one family, three of which were fatal; in Yonkers there were ten cases and in Patterson two.

Water Supply and Cross-Connections.—The commissioner of public works, Binghamton, has recently issued orders to twelve industrial concerns to disconnect recently discovered cross-connections between the city water system and private supplies from polluted sources. For some time typhoid cases have been occurring in which the sources of infection have been obscure.

State Clinics to Be Coordinated.—An interdepartment committee composed of representatives of the state hospital commission, state commission for mental defectives, state department of education, state board of charities, state commission of prisons, state probation commission and the state department of health has been formed to coordinate state clinic activities. The commissioner has appointed Dr. Paul B. Brooks, deputy commissioner, to represent the state department of health.

Failure to Report Births.—In the course of a survey conducted by the division of vital statistics of the state department of health, it has been discovered that three physicians in one section of the state have neglected to report births which they attended; in one instance a physician failed to report ten births in two years. The evidence of these failures to comply with the law will be transmitted by the state commissioner of health to the attorney general. So far the check-up indicates that registration of births is between 95 and 97 per cent. complete.

Typhoid Carriers in New York.—According to the state department of health, there were on January 1, ninety persons listed as typhoid carriers in the state. This is twenty more than during the preceding year. Four died, one moved out of the state, three were returned to the list and twenty-one new carriers were discovered during the year. One of these carriers worked on a dairy farm and was responsible for twenty-five cases of typhoid fever. In all, sixty-nine known cases of the disease were attributable to these twenty-one carriers, but all of the cases did not occur in the last year. There are now eighteen typhoid carriers in state hospitals as against sixteen a year ago.

Appropriation for Safe Hospitals.—A bill has been introduced in the legislature providing for an appropriation of $12,500,000 for the repair of state hospitals and the construction of hospital buildings. This is one fourth of the $50,000,000 bond issue approved at the last election. The Downing bill is practically certain to pass both houses. The work of repairing buildings will be started as early as possible. The institutions which will benefit by the Downing bill are Kings Park Hospital, Brooklyn State Hospital, Harlem Valley Hospital, Matteawan Hospital, Manhattan Hospital, Rochester State Hospital, Rome State School, New York State Orthopedic Hospital for Children, Letchworth Village and the Craig Colony.

A Study of Rural Practitioners.—The first meeting of the governor's committee to investigate conditions pertaining to

medical practice in the rural districts was called, February 1. Prof. Dwight Sanderson, professor of rural organization, Cornell University, Ithaca, was elected permanent chairman. It was decided that an intensive survey should be made of some rural county, in order to determine definitely the adequacy of medical service in the more remote sections. The committee serving with Dr. Sanderson comprises: Dr. Orrin Wightman, president of the state medical society; Dr. Grant C. Madill, former president of the state medical society; Dr. Matthias Nicoll, Jr., state health commissioner; State Senator Byrne, Albany; Dr. Charles Stover, Amsterdam, and Mrs. Powell, president of the New York State Federation of Home Bureaus.

New York City

Physician Sentenced.—According to reports, Dr. Harry H. Gormly was sentenced, February 5, by Judge Simpson to the penitentiary for issuing a false death certificate. The sentence carries a minimum term of six months and a maximum of three years.

Measles Makes Biennial Visit.—The Brooklyn office of the department of health announces that the biennial epidemic of measles has arrived in that borough. There were 423 cases reported for the week ending February 17. In 1922 there were 13,760 cases of measles in the borough, while in 1923 there were only 2,635. The death rate is low.

Convalescent Home for Children.—The Children's Aid Society announce the gift of a convalescent home for boys in the Westchester Hills by Dunlevy Milbank, in memory of his father, the late Joseph Milbank. A building to accommodate fifty boys will be erected on the Malcolm farm adjoining the Brace Memorial School, and will form a part of the Milbank gift of $100,000.

Brooklyn Physicians Oppose Carroll Bill.—The Kings County Medical Society, at its regular meeting, February 19, went on record as opposing Assembly Bill No. 927, and the corresponding Senate Bill No. 663. These bills propose to change the Medical Practice Act, to reduce the practice of medicine by quacks. They require registration of physicians with the board of regents every year for five years. The reason given in resolutions opposing this measure was "that the bill is not adequate to our needs as we see them." Dr. Orrin S. Wightman, president of the Medical Society of the State of New York, who spoke in favor of the bill, stated that for forty-four years the regents had not kept an alphabetical list of those whom they have licensed.

Personal.—Dr. Isador W. Kahn was recently elected president of the Riverside Medical Society.——Dr. Herman Robbins has been appointed pediatrician to the Brooklyn Tuberculosis Committee.——Dr. Benjamin Schwartz has been appointed consulting physician and director of the board of child welfare of New York.——Dr. Charles Gordon Heyd has been appointed consulting surgeon and Dr. George Schwartz has been promoted from attending surgeon to visiting surgeon, at the People's Hospital.——Dr. Jules L. Blumenthal has been appointed director of the bureau of child hygiene of the city health department. The office has been vacant since the resignation of Dr. S. Josephine Baker, two years ago.——Dr. Julie L. Stevens of Paris, France, recently arrived in the United States to give lectures on nutrition.——On the French liner *Rochambeau*, sailing from New York, February 21, were Dr. Walter B. Hardy, Birmingham, Ala., who will join the staff of the American Hospital, Paris, and Dr. Otto R. Eichel, director of vital statistics of the state department of health, who has gone to Geneva to direct the epidemiologic intelligence and statistics section conference of the League of Nations.

NORTH CAROLINA

Hospital News.—The Mission Hospital, Asheville, was formally dedicated, Dec. 20, 1923. The new building was erected at a cost of $200,000. The old frame structure will be torn down.——Dr. Thomas C. Johnson, Lumberton, has leased the Thompson Hospital and will continue its operation. He has had charge of the institution since the death of Dr. Neill A. Thompson in 1922.

OKLAHOMA

Hospital News.—The Woodward Hospital and the Ross Hospital at Woodward have merged. The new institution is known as the Woodward General Hospital.

Society News.—At the Lincoln's birthday banquet of the Carter County Medical Society in Ardmore, February 12, Dr. LeRoy Long, dean of the University of Oklahoma School of Medicine, Oklahoma City, and Dr. Carl Puckett, Pryor, state health commissioner, gave addresses.

PENNSYLVANIA

County Heart Clinic.—The Red Cross Association of Cambria County, with headquarters in Johnstown, has established a clinic for the study, prevention and treatment of heart disease among the poor. Dr. Horace B. Anderson, Johnstown, will be in charge of the clinic.

Society Goes to Court.—The Anti-Tuberculosis Society of Schuylkill County went into court, February 25, to establish the constitutionality of the law which permits the erection of hospitals for tuberculosis patients. The voters of the county voted an appropriation of $200,000 for a hospital but it has been held up until the validity of the law has been determined.

Society News.—The Luzerne County Medical Society has organized a branch with headquarters at Hazelton. The following officers were elected: president, Dr. Manfred H. Kudlich; vice president, Dr. Joseph C. Kochzynski, and secretary-treasurer, Dr. Otto C. Reiche.——At the annual business meeting of the Cambria County Medical Society, Johnstown, January 10, the following officers were elected: president, Thomas E. Mendenhall; first vice president, John W. Barr; second vice president, Robert J. Sagerson, and secretary-treasurer, Joseph J. Meyer.

Philadelphia

Clinic for Mothers Founded.—Mrs. Edward T. Stotesbury has provided an income of $5,000 a year for an outpatient obstetrical department at the Babies' Hospital. Dr. Alice Tallant, former professor of obstetrics at the Woman's Medical College, is in charge, and Dr. Maud Kelly is assistant. The actual work of the department will be done by Dr. Mary Tuttle, who has been engaged for full time work as obstetrician. The gift provides for work among poor women in the downtown sections of the city.

Society Elections.—At the annual meeting of the Philadelphia Laryngological Society, Dr. George W. Mackenzie was elected president; Dr. William A. Hitschler, vice president, and Dr. Henry A. Laessle, secretary.——Drs. Edmund B. Piper and Charles S. Barnes were elected president and secretary, respectively, of the Obstetrical Society of Philadelphia.——Dr. George Woodward was elected president of of the Children's Aid Society at the organization meeting, February 13.——At the annual meeting of the Philadelphia Pathological Society, Dr. Edward B. Krumbhaar was elected president; Dr. Eugene L. Opie, vice president, and Dr. Baldwin H. E. W. Lucke, secretary-treasurer.

SOUTH DAKOTA

Physician Missing.—A reward of $2,000 has been offered by friends and colleagues for information regarding the whereabouts of Dr. Frederick E. Fyle, owner of a hospital at Geddes, who disappeared from Sioux City, Iowa, Dec. 11, 1923. Dr. Fyle was 52 years old, 6 feet and 2 inches tall, and weighed 220 pounds.

VIRGINIA

Alumni Reunion.—Members of the Medical College of Virginia, classes of 1899 and 1914 who live in Richmond, attended a banquet in that city, February 11. Dr. Manfred Call, dean of the school and president of the alumni association, is a member of the class of 1899. The class of 1914 represents the first class graduated after the consolidation of the Medical College of Virginia with the University College of Medicine.

Personal.—Dr. Robert Finley Gayle, Jr., associate in nervous and mental diseases at the Medical College of Virginia, Richmond, is giving a course of lectures on mental hygiene before the Richmond School of Social Work and Public Health.——Drs. Jeffrey N. Elder and William S. Woody have been appointed members of the Hopeweli Board of Health with Dr. Johannes C. Bodow.——Dr. and Mrs. Benjamin F. Iden celebrated the fiftieth anniversary of their wedding, January 27. Dr. Iden has practiced medicine in Manassas for more than half a century.——Dr. Greer Baughman, professor of obstetrics, Medical College of Virginia, Richmond, read a paper on "The Toxemias of Pregnancy" before the Norfolk County Medical Society, January 28.——Dr. Philip L. Hill, Jr., a medical missionary to Choon Chun, Korea, a graduate of the Medical College of Virginia, 1917, has been on furlough in Richmond.——Dr. George R. Maloney has resigned as chief

of the division of communicable diseases of the bureau of health of the department of public welfare, Richmond. Dr. H. O. Bell will succeed him.——Dr. Ira Cephas Riggin, director of the Suffolk-Nansemond health unit, has resigned to accept the position of state epidemiologist on the Virginia State Board of Health. Dr. Edgar L. Sutherland will succeed Dr. Riggin.——Dr. Fred M. Hodges, Richmond, was recently elected president of the Richmond Academy of Medicine.

WISCONSIN

University News.—The University of Wisconsin Medical School, Madison, has reappointed the following as lecturers in clinical medicine and surgery: Drs. Homer M. Carter, Joseph Dean, Hugh P. Greeley, Reginald H. Jackson, Thomas W. Tormey, Harry M. Kay and George H. Robbins. Damon A. Brown, James P. Dean, Albert R. Tormey and James A. Jackson, Jr., were appointed associates in clinical medicine and surgery for the second semester.

Personal.—Dr. Charles S. Sheldon, Madison, for many years secretary of the state medical society, celebrated his eighty-second birthday, January 14.——Dr. Edwin F. Schneiders has resigned as instructor in clinical medicine at the University of Wisconsin Medical School, Madison.——Dr. Wilbur T. Sarles, Sparta, formerly a member of the Board of Trustees of the American Medical Association, is confined to his home with a partial paralysis of the left side.——Dr. Austin J. Hebemstriet, formerly of Howells, Neb., has taken over the practice of the late Dr. Cornelius G. Schwalbach of Juneau.——Dr. Merle R. French, Iowa City, Iowa, has been appointed epidemiologist of Milwaukee.——Dr. L. Rock Sleyster, president of the state medical society, addressed the Milwaukee County Health Society, January 31.——Drs. William A. Henke and Alvie Jens Rosholt were recently elected president and secretary-treasurer, respectively, of the La Crosse County Medical Society.

CANADA

Canadian Medical Meeting.—The annual meeting of the Canadian Medical Association will be held in Ottawa, June 17-20, under the presidency of Dr. John F. Kidd, Ottawa. The Ontario Medical Association and the Ottawa Medico-Chirurgical Society will meet at the same time.

Osler Memorial Lecture.—The 1924 "Osler" lecture was delivered by Dr. Bertram D. Gillies, January 8. This lecture was established by the Vancouver Medical Association in memory of the late Sir William Osler who was an honorary member. Dr. Gillies spoke on "Recent Advances in Our Knowledge of the Liver and Its Functions."

Congress of French-Speaking Physicians of North America.—The announcement has appeared in regard to the Eighth Congress of the Association des médecins de langue française de l'Amérique du Nord, which is to convene at Quebec, Sept. 10-12, 1924. Dr. A. Vallée, professor of pathologic anatomy, is to preside. The secretary is Dr. G. A. Racine, 432 St. Joseph St., Quebec.

Alpha Kappa Kappa.—Medical men from all parts of America met in Montreal recently for the international convention of the Alpha Kappa Kappa medical fraternity. Special clinics were given in the various hospitals, the Alpha Delta Chapter of McGill University acting as host. The McGill chapter was organized in 1904 and is one of two chapters of this fraternity in Canada, the other being at the University of Toronto.

Hospital News.—The new cottage hospital at Inverness was opened by the prime minister of Nova Scotia recently.——Plans have been completed for a new asylum for the chronic insane of Halifax County, Nova Scotia. The institution, which will be erected at an estimated cost of $200,000, will be located at Windsor Junction.——The lieutenant-governor has signed the bill incorporating the amalgamation of the Montreal General and the Western hospitals, effective Jan. 1, 1924. Lieut.-Col. Herbert Molson was elected president of the board of governors of the combined institutions.

Personal.—Dr. James F. Ellis, formerly medical director, Unit B, Department of Soldiers' Civil Reestablishment, Halifax, Nova Scotia, has been transferred to Ottawa, where he is a member of the board of pension commissioners. Dr. Murdock A. MacAulay, Halifax, succeeds Dr. Ellis as medical director of Unit B, while Dr. Oscar G. Donovan, Halifax, succeeds Dr. MacAulay as superintendent of Camp Hill Hospital.——Prof. E. Gordon Young, formerly of the University of Western Ontario, has been appointed professor of biochemistry at Dalhousie University Faculty of Medicine, Halifax, Nova Scotia.——Dr. Dorilas Roy, St. Ephrem de Tring, Quebec, has been appointed superintendent of the St. Michel Asylum, Quebec, to succeed Dr. M. Delphis Brochu who resigned recently. Dr. Albert Marois has also resigned as assistant superintendent of the institution.——Prof. George S. Melvin, professor of physiology, Queens' University, Kingston, addressed the Ontario County Medical Society at Whitby, recently, on "The Autonomic Nervous System."——Dr. Lavell H. Leeson has been succeeded by Dr. Richard A. Seymour as assistant superintendent of the Vancouver General Hospital.——Drs. R. Frederick Nicholls and Francis J. Folinsbee were elected president and treasurer, respectively, of the Edmonton (Alta.) Academy of Medicine for 1924, at the recent annual meeting.

GENERAL

Child Health Magazine.—With the January number of *Mother and Child*, the official publication of the American Child Health association for the last four years, became the *Child Health Magazine*. The publication is twice its former size.

Tons of Quinin for Greece.—One of the largest shipments of quinin believed to have ever been made, left New York for Piraeus, February 9, when the American Red Cross made an initial shipment of 5 tons on the S. S. *Themistocles* to relieve the epidemic of malaria in Greece. There were 10 million 5-grain tablets and 2,000 pounds of powdered quinin. It is said that a much larger amount will be required.

Bill to Create Bureau of Dairying.—At the request of several national dairy organizations, Representative Haugen, chairman of the Committee on Agriculture of the House of Representatives, has introduced a bill to create a separate bureau of dairying in the Department of Agriculture. As the department is now constituted, this bureau is a subdivision of the Bureau of Animal Industry. Representative Haugen's bill would create a new bureau to be known as the Bureau of Dairying; and would confine its activities to the dairying industry and disseminate general information on that subject.

Action on Appropriation for Howard University.—The fate of the appropriation of $500,000 for the medical school of Howard University depends on the outcome of a parliamentary technicality in the Senate. This amendment has the ardent support of Secretary of the Interior Work and has for its purpose the medical education of negro students to overcome the shortage of colored physicians throughout the United States. Senator Overman of North Carolina has raised a point of order against the appropriation, but Senators Lenroot of Wisconsin and Spencer of Missouri will endeavor to suspend the rules in order to sustain the amendment.

Hearings on Rathbone Bill.—The commissioners of the District of Columbia have approved the bill introduced in the House of Representatives by Congressman Rathbone of Illinois, regulating the manufacture, sale and advertisement of toxins and serums within the District of Columbia. The bill makes it a penal offense to publish any advertisements of the therapeutic "use or value of any virus, serum, toxin or vaccine unless the same shall first be submitted for the approval" of a medical board; and without publishing with the advertisement a statement that the board has approved the toxin or serum. The House Committee on District of Columbia has held a hearing on Representative Rathbone's bill.

Society News.—The annual meeting of the American Society of Clinical Pathologists will be held June 5-7 at Rochester, Minn., under the presidency of Dr. William C. MacCarty of the Mayo Clinic. Arrangements have been completed with the *Journal of Laboratory and Clinical Medicine* to publish all the official transactions and papers of the national society.——The South Carolina Medical Association will hold its annual meeting at Orangeburg, April 15-17, Dr. Joseph C. Bloodgood, Johns Hopkins Medical School, Baltimore, will deliver the address on surgery.——The American Proctologic Society has arranged for its members to sail for England on the S. S. *New Amsterdam* from New York, June 28, to attend scientific sessions in London, from July 9-11 (THE JOURNAL, January 19, p. 219).

Legislation on Narcotics.—A bill introduced in the House by Representative Porter would provide that no crude opium shall be imported for the purpose of manufacturing heroin. The bill amends the Harrison Narcotic Law by adding such provision to it. Congressman Porter, chairman of the Committee on Foreign Affairs of the House, has, for several years, taken an active interest in legislation to regulate narcotics and was the delegate chosen to represent the United

States at the conference at Geneva, Switzerland, to restrict production of opium and narcotics. The Surgeon-General of the Army has issued an order that applies to the Medical Corps the terms of the resolution adopted by the American Medical Association to the effect that heroin be eliminated from all medical preparations and that it must not be administered or prescribed.

Legislation for Tuberculous Ex-Service Men.—A more liberal policy on the part of the government for ex-service men, who are suffering from tuberculosis and mental diseases, is set forth in a bill introduced in the House by Representative Jeffers. The bill provides that, where such disease develops within five years after discharge, it shall be presumed to have been the result of army service and the ex-service man shall be entitled to government compensation and rehabilitation. The bill is directed at one of the most difficult medical problems of the Veterans' Bureau. Thousands of claims of ex-service men for government aid on account of tuberculosis have in the last few years been filed in the Veterans' Bureau. The majority of these claims have been rejected because of the inability of the ex-service men to prove that tuberculosis was due directly to military service. This proposed legislation enters a new field of government aid.

American Congress on Internal Medicine.—At the eighth annual meeting of the congress in St. Louis, February 18-23, the following officers were elected for the ensuing year: president, Dr. William Gerry Morgan, Washington, D. C.; vice presidents, Drs. Leonard M. Murray, Toronto, Canada, and Roy R. Snowden, Pittsburgh; treasurer, Dr. Clement R. Jones, Pittsburgh, and secretary general, Dr. Frank Smithies, Chicago (reelected). Washington, D. C., was chosen as the meeting place of the congress in 1925. The American College of Physicians conferred fellowships on 178 candidates. The officers for the year are: president, Dr. Harlow Brooks, New York; vice presidents, Dr. Jabez Elliott, Toronto, Canada, and Dr. Aldred Scott Warthin, Ann Arbor, Mich.; treasurer, Dr. Clement R. Jones, Pittsburgh, and secretary general, Dr. Frank Smithies, Chicago. Dr. Aldred S. Warthin, Ann Arbor, was selected as editor-in-chief of the *Annals of Clinical Medicine*, the official publication of the American College of Physicians and the American Congress on Internal Medicine. His duties begin July 1.

Secretary Hughes Approves Narcotic Resolution.—Secretary of State Hughes has approved the need for additional international activity to suppress traffic in narcotics and has endorsed the legislation pending in Congress to appropriate $40,000 for American participation in two international conferences to restrict production in narcotics. The letter of Secretary Hughes is addressed to Congressman Porter, chairman of the Committee on Interstate and Foreign Commerce, and states: "This resolution has my full and unqualified approval, and I feel sure that its prompt passage is necessary to enable this government to continue its efforts to obtain a complete international understanding in regard to the limitations which must be placed on the production and dissemination of opium and coca leaves and their derivatives. I may add that for nearly twenty years the United States has occupied a prominent position in urging international action in this regard and in carrying out the international obligations it has assumed for the control of the traffic, and I trust that Congress will authorize an appropriation that will permit the government to continue in the future as it has in the past." The House Committee has unanimously agreed to report the Porter resolution, so that the United States can participate in the two international narcotic conferences to be held this year.

FOREIGN

Laboratory for Colloid Chemistry.—The laboratory for research in colloid chemistry and physics, which has been founded at the University of Manchester, England, by merchants of the county, was formally opened, January 23. The laboratory is named after Thomas Graham, and has five rooms equipped for research work. Prof. D. C. Henry, lecturer in chemistry at the university, is in charge.

Postgraduate Work Abroad.—The Paris Faculty of Medicine publishes a circular giving the long list of postgraduate courses offered for 1924 at Paris, with details as to topics, phases of topics, lectures, dates and prices. The circular will be sent on application to the Secrétariat de la Faculté de médecine, Rue de l'Ecole de médecine, Paris. Similar circulars are issued by the faculties at Vienna and elsewhere.

Geographical Distribution of Epilepsy.—Prof. V. M. Buscaino, of the chair of neurology at Florence, has appealed to the *Difesa sociale*, the organ of the officially sponsored Institute of Hygiene, Rome, to inaugurate the study of the geographical distribution of epilepsy and of goiter in different countries. He thinks that concerted international research of this kind might throw light not only on the etiology but on prevention and treatment of epilepsy.

International Congress for Comparative Pathology.—This much postponed congress is to convene at Rome, April 27-May 3, 1924, Prof. E. Perroncito presiding. The topic "Epizootic and Parasitic Diseases" is to be presented by Vallée, Calmette, Thorel and Fibiger are the officially appointed speakers to open discussion on other days of the congress. There are to be receptions every evening and a closing gala concert. Further particulars can be obtained from the president, Prof. E. Perroncito, 40 Corso-Valentino, Turin.

Society News.—At a recent meeting of the International Society of the History of Medicine in Paris, it was unanimously decided to admit Austrian representatives.——The annual medical congress known as the "Journées médicales de Bruxelles" will be held in Brussels from June 29 to July 2. Further information can be obtained from Dr. René Beskers, 36 rue Archimède, Brussels.——The Marquis of Salisbury has accepted the presidency of the thirty-fifth Congress of the Royal Sanitary Institute, to be held at Liverpool, England, July 14-19.

German Physicians Win.—The "panel" physicians who, three months ago when the paper mark crashed, asked to be paid in gold, have won. The ministry of public welfare and the labor office have agreed that sick benefit organizations must cooperate with physicians on a gold basis.——The German National Health Insurance Fund for office employees has been compelled practically to suspend operations, owing to the financial situation. Its two sanatoriums and some 3,600 beds at its disposal in fifty different hospitals have had to be dropped. The only office employees now under treatment are those having tuberculosis.

The Incidence of Plague.—According to public health reports the largest amount of plague prevailing is in British India. From Oct. 14 to Nov. 10, 1923, the deaths ascribed to plague in that country amounted to 12,124. Of this number 4,158 deaths were in Bombay and 2,005 in the Punjab.——Recently 40 cases of plague and 38 deaths were reported in Tananarivo, Madagascar, and 16 deaths from Portuguese West Africa in 59 cases, in less than two months.——Peru, Constantinople, South Africa, Asunción, Paraguay, Canary Islands, Ceylon, China, Egypt, Ecuador, Greece, Java, Morocco, Palestine, Russia and Syria have recently reported plague.

The League of Nations and Narcotics.—The secretary general of the League of Nations sent a letter to various governments suggesting that the penalties on persons engaged in the drug traffic should be increased and the present system of import and export licenses should be enforced. The notification to the league of any seizure of drugs reduces smuggling, for on receipt of notification the secretary informs the country from which the drugs came, and all other members of the league, so that they, too, may adopt measures to prevent imports from foreign firms with a bad reputation. Within the last few weeks, the foreign office of England has informed the secretary of an attempt by an Italian sailor to smuggle cocain into Bombay, and of seizures of cocain of German and Japanese origin at Calcutta. The Australian government has reported the discovery at Sydney of fifty tins of opium which arrived from Hong-Kong, and the Union of South Africa has reported the seizure of twenty-five tins of morphin hydrochlorid, imported through a company in Berlin. The league proposes to summon in November an international conference to discuss the limitation of production of harmful drugs to medical and scientific requirements.

Deaths in Other Countries

Sir **Malcolm Morris**, lecturer on dermatology at the London School of Clinical Medicine, president of the Harveian Society and of the section on dermatology of the Royal Society of Medicine; suddenly at Bordighera, Italy, February 19.

CORRECTION

No Diphtheria Epidemic at Eau Claire.—THE JOURNAL stated, February 16, that the schools of Eau Claire, Wis., had been closed on account of an epidemic of diphtheria. We have been informed by the health department that the schools of Eau Claire have not been closed for any reason of contagion since 1918.

Government Services

Hospitals Authorized

Pursuant to instructions of the Secretary of War the following hospitals (organized reserves) have been authorized: General Hospitals No. 112 (Chicago Policlinic Hospital Unit, Chicago); No. 111 (University of Michigan Medical School Unit, Ann Arbor), and No. 110 (Illinois Masonic Hospital Unit, Chicago), and Surgical Hospital No. 2 (College of Physicians and Surgeons Unit, Columbia University, New York).

Army Class in Physiotherapy Graduates

The graduating exercises of the second annual training course in physiotherapy were held at the Army Medical Center, Walter Reed General Hospital, Washington, February 15. Major James B. Montgomery, M. C., director of physiotherapy, introduced Dr. Custis Lee Hall, professor of orthopedic surgery, George Washington University, who addressed the graduating class on the "Value and Place of Physiotherapy in Medicine." Gen. Merritte W. Ireland, Surgeon-General of the Army, presented the certificates of proficiency. Thirteen members of the graduating class have accepted appointments as aides in physiotherapy in the following named U. S. Army hospitals: Walter Reed General Hospital, Washington; William Beaumont General Hospital, El Paso, Texas; Fitzsimmons General Hospital, Denver, and Letterman General Hospital, San Francisco.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 4, 1924.

Campaign Against Leprosy

A campaign on behalf of the 300,000 lepers in the British Empire was launched at the Mansion House by a meeting of the British Empire Leprosy Relief Association, over which the Lord Mayor presided. Lord Chelmsford, chairman of the association, announced that the movement was being supported by every class in the empire, and that the king and the Prince of Wales had each contributed $500 toward the $1,250,000 it was hoped to raise. He read a letter from Lord Reading, viceroy of India, who said that there was a great field for the association in India, where, according to the census, there were 112,000 lepers, and probably many more in consequence of ignorance and a desire to conceal the disease. Sir Humphry Rolleston, president of the Royal College of Physicians, stated that, as the greatest colonizing power in the world, it was our duty to eliminate this awful scourge. This country was practically free from the disease, there being only one very small colony near Chelmsford. But it was once a very different story. Isolation, no doubt in association with other factors, helped to eliminate the disease. Concealment was now a great difficulty in the prevention of the disease. Segregation must be rendered attractive instead of repulsive, but segregation alone was not sufficient. If a patient was detected at an early stage and then cured, his power of spreading the disease was thus prevented. There was good reason to believe that Sir Leonard Rogers had found in the fatty acids of certain oils and in sodium morrhuate a remedy that bid fair to be a real cure. But further work remained for him to do, and this required endowment. It was not always that the right man and the means for such a success were available, and it was up to them to give him full opportunity.

Sir Leonard Rogers described his researches into the old Indian remedy, chaulmoogra oil, and into sodium morrhuate, which on intravenous injection, he said, destroyed the leprosy bacillus in the body with a clearing up of all symptoms. He also paid a tribute to the work of America in leprosy cure. An American chemist had introduced a slightly different and more convenient preparation. The latest report from the Philippines showed that 56 per cent. of the patients improved, and in 36 per cent. more the progress of the disease was stopped. There was good reason for believing that permanent cure could be obtained. An exceedingly valuable consequence of the new spirit of hope among the lepers was that, for the first time in the 3,000-year-old history of leprosy, large numbers of lepers were coming forward voluntarily in the early and more amenable stage, instead of concealing the disease and remaining a source of infection. Not more than one fifth of the lepers in the British Empire could be receiving the improved treatment; hence the need for that association. There was an unlimited field for further research, while chemists could provide them with synthetic compounds, including the fatty acids already proved useful. There were further possibilities of discovering a more rapid cure, and possibly one also for tuberculosis.

Public Telephones and Disease

In view of apprehensions expressed as to the communication of disease, the postmaster-general has had a series of bacteriologic tests made with telephone mouthpieces that had been used at busy call offices, and had received no special treatment other than that normally given. The reports were most satisfactory and the tubercle bacillus was not found. More drastic tests were then made. Telephones were fitted in the wards of a sanatorium and used only by patients in different stages of tuberculosis. The instruments were in use for varying periods and were not cleaned or disinfected during the course of their experimental use. Bacteriologic experiments gave entirely negative results, and the expert who made the experiments gave his opinion that the transmission of tuberculosis through the medium of telephone mouthpieces was practically impossible. A staff of cleaners is permanently employed in looking after the call offices at railway stations and in public places. The call offices are thoroughly cleaned, and the transmitter mouthpieces and receiver caps are disinfected at regular intervals of about three days.

A Ross Institute for Tropical Diseases

A movement to establish in London a Ross Institute for Tropical Diseases was inaugurated last year to commemorate Sir Ronald Ross' great work on tropical medicine, and the twenty-fifth anniversary of his epoch-making discovery of the transmission of malaria to man through the bite of the anopheles mosquito. The idea was that such an institute for research and treatment of disease would be a monument worthy of one of our greatest investigators in medical science. The executive committee of the institute announces that it now has the opportunity of acquiring suitable premises which, with the necessary alterations, would make an admirable permanent home of the kind required. The cost would be $150,000, toward which contributions are invited.

Visit of Foreign Health Officers

Twenty-eight health officers from about twenty countries in Europe and America have arrived in London on a visit which will extend over ten weeks, for the purpose of studying health administration. A similar visit was paid to this country last year, and British health officers have paid visits to other countries for a like purpose. The scheme is arranged by the health branch of the League of Nations, which promotes these "exchanges" (as they are styled) of health officers and has obtained a grant from the International Health Bureau of the Rockefeller Foundation toward the payment of the traveling and other expenses of the partici-

pants. According to the timetable, which has been compiled by the Society of Medical Officers of Health at the request of the ministry of health, the visitors will spend in London the first and last weeks of their stay, and will have the opportunity of learning something of the activities and methods of certain national authorities, such as the ministry of health and the registrar-general, the London County Council and the Metropolitan Water Board. After the visitors have passed a week in London they will be distributed in small groups over the country for two months, and will study health administration in the large cities of Liverpool, Manchester, Cardiff, Bradford, Edinburgh, Brighton and Southampton, and also in the offices of a number of county health officers and in several urban and rural districts. "It is expected," wrote the president of the Rockefeller Foundation in his annual report, "that these exchanges between different countries will promote efficiency and a sense of professional comradeship across national boundaries."

"The Emanometer"

In the lay press, the "wonders" of the "emanometer" evolved by Dr. Boyd of Glasgow, from a similar instrument invented by the late Dr. Abrams of San Francisco, are again described. We are told that it indicates the disease, its extent, and the specific medicine required to cure it, by wave-length reactions. It also enables latent diseases and hereditary taints to be detected, and a patient's power of resistance and sex (when the patient is not seen). The machine consists of an induction coil similar to that of a radio set, and a plate device movable along a marked and measured slide. A small electrode is placed on the forehead of the patient, who stands on a metal plate connected to an earth wire. Blood or saliva or any physical emanation from the patient, such as perspiration or a tear, is placed on the plate device. The device is moved along, and the point on the scale at which the reactions occur indicates the disease and its magnitude, for each disease has its own wave length. The patient must face East and West, at right angles to the magnetic field. One thing that we are told about this wonderful instrument appears to be credible: "It exerts a valuable psychologic influence on the patient."

Rockefeller Gift to Cambridge University

The senate of Cambridge University has accepted the generous offer of the board of trustees of the Rockefeller Foundation of $500,000 for the building and general maintenance of the school of pathology, and of $165,000 toward the endowment of the school, provided the university can secure the remaining equal sum for the completion of the endowment. In making this offer, Dr. Richard M. Pearce, director of the foundation's division of medical education, expressed its pleasure at having some small share in aiding the complete development of the provisions for the cultivation of the medical sciences at Cambridge.

Tuberculous Ex-Service Men: Government Provision for After-Care

Arrangements have been made to secure that the local agencies of the ministries of labor and pensions will actively cooperate with the local health authorities in the after-care of ex-service men suffering from tuberculosis on their return home after a course of treatment, or treatment combined with training in a sanatorium. It has been arranged that six weeks (or as long as possible) before the tuberculous man's discharge from an institution the notification of the pending discharge will be sent to the tuberculosis officer of the man's place of residence. Thereupon special steps will be taken, on the one hand, so that, as far as possible, the patient shall not return to home conditions that are likely to prevent satisfactory progress or to cause a relapse; and, at the same time, to do all that is possible to assist the man to obtain employment in a suitable occupation. So far as the man's home conditions are concerned, the tuberculosis officer and his staff, or the tuberculosis care committee, if one has been established in the area, will, if these conditions are unsatisfactory, take such action as may be practicable to improve them. As regards the man's employment, if the tuberculosis officer considers that it is unsuitable, he will furnish the employment exchange with a list of occupations which he considers not definitely unsuitable. The employment exchange will render all possible assistance in the matter, and special efforts will be made by the king's roll committee and the war pensions committee. The success of after-care in tuberculosis is held to depend primarily on personal effort and individual attention, and all the local organizations concerned have been asked to cooperate actively in the work.

PARIS

(From Our Regular Correspondent)

Feb. 1, 1924.

Needy Foreigners and Free Medical Care

At a recent congress of the Union hospitalière du Nord-Est, M. de Beaumont presented a communication on the kind of assistance to which needy foreigners are entitled. This problem claims considerable public interest (THE JOURNAL, July 15, 1922, p. 228). It was discussed at the international congress of public welfare at Copenhagen in 1911, and at the diplomatic conference at Paris in 1912. The decisions reached at these conventions may lead to treaties of reciprocity between nations whose citizens reside in foreign countries. Unfortunately, the World War put a check on these negotiations and the treaty between France and Italy of Sept. 30, 1919, was the first to cover the question of assistance to needy foreigners. Since then treaties have been ratified with Poland, Oct. 14, 1920; Belgium, Nov. 30, 1921, and Luxemburg, Jan. 4, 1923. A committee on drafting of international treaties is planning other similar conventions, and negotiations have been opened with several countries. How will such treaties affect the hospitals of France? In drafting these treaties, account was taken of a decision of the international conference of 1912, which was that the cost of the first forty-five days' treatment of foreign patients should be considered temporary assistance, and should be paid by the country of residence. It remains to be determined how this cost shall be distributed. At present, the cost of treatment of needy foreigners sick in a commune in which there is a hospital is borne by the hospital, but this does not seem just. A bill therefore has been introduced in the chamber of deputies which provides that the cost of assistance given foreigners, so far as it rests on France, will be borne by the central government, the provinces, the communes and the various public institutions, on the same basis as assistance accorded to Frenchmen. At the suggestion of M. de Beaumont, the Union hospitalière du Nord-Est passed a resolution to the effect that the bill should become a law as soon as possible.

M. de Beaumont considered in his communication the position of patients who belong to nations with which France has no treaty. At present a foreigner taken sick within the jurisdiction of a commune which has no hospital cannot claim the right of hospitalization. If there is a hospital in the commune, the law requires that the committee on organization of municipal shelters must hospitalize every needy person, whether Frenchman or foreigner, who is taken sick within its jurisdiction. The council of state, to be sure, has said that "needy foreign patients shall not, necessarily, be admitted to hospitals unless a reciprocity treaty with their home country is in force." The superior council of the Assistance publique, in view of possible disastrous consequences, held, however, that, until further international treaties could

be concluded, "French hospitals should, though no legal obligation exists, continue to admit foreigners who have been injured or who are suffering from acute disease." This burden is especially heavy for hospitals in northeastern France, where foreign workmen are employed in building up devastated regions. M. de Beaumont points out that the departments, communes and employers are profiting from this work of foreigners, and it is therefore a great injustice to require hospitals to hospitalize these men gratuitously. The same thing is true of hospitals on the frontiers. They should not bear the burden of hospitalizing the many foreign patients detained in those cities, some of whom bring germs of tropical and contagious disease. It is plainly a national service which these hospitals render in controlling epidemics to safeguard the remainder of France. The central government therefore should reimburse them for expenses incurred. Moved by these motives, the congress of the Union hospitalière du Nord-Est resolved that under no circumstances should the expense of treating foreign patients be borne by hospitals but rather by the government or the country whence they came.

The Franco-American Committee

The Strasbourg section of the Franco-American Committee held a reception recently in honor of Prof. and Mrs. Kingsley Porter. M. Baulig, professor of geography at the University of Strasbourg, who spent four years in the United States, first as a student and later as a professor in Harvard University, gave an address of welcome. He recalled the courtesy and hospitality shown him in America, and described the part played by universities in general in America and particularly by Harvard. Professor Porter in turn expressed thanks, and mentioned recent visitors at Harvard who represented the Faculté de médecine of the University of Strasbourg; among them was the dean, Professor Weiss.

The Danger of Pituitary Extracts

L. Pouliot and J. Truchard published an article a few months ago in the *Revue française de gynécologie et d'obstétrique,* in which they contended that the American authors M. P. Rucker and C. C. Haskell had exaggerated the danger of pituitary extract and thus misled Le Lorier, Cheinisse and others in France who allowed themselves to be disturbed by "erroneous and superficial findings." Pouliot and Truchard allege that of the fifty-three cases of ruptured uterus published by Rucker and Haskell, a number of cases were counted twice, having been reported in previous publications. Among the thirty-three new cases, sixteen were reported without sufficient details, and in sixteen other cases, Pouliot and Truchard say that one should never have resorted to pituitary extract medication.

In "Année Thérapeutique," which has just been published, Dr. Cheinisse, the author, points out that, if any superficial judgment has been formed, it was not due to the American authors, but to Pouliot and Truchard, who did not read carefully the American articles on this subject. For example, they state that of twenty cases of ruptured uterus reported by DeLee, sixteen were taken from McNeile; as to the other four cases, they quote DeLee: "I know of four others." They add that "the context allows one to assume that the four other cases also were taken from previous publications and have been counted twice." On examining the text referred to, Cheinisse was surprised to find that DeLee had stated just the opposite of what Pouliot and Truchard interpreted. These are DeLee's words: "I know of four others. All happened in the city of Chicago and have not been published (THE JOURNAL, Oct. 5, 1918, p. 1119)." It is clear that these four cases could not have been taken from previous publications for the simple reason that they were never published.

There is another misunderstanding: Dr. Le Lorier, in citing an article, states: "The statistics of Mundell give twelve cases of ruptured uterus in a series of 1,293 childbirths observed in 1915-1916, or the unusually high percentage of one ruptured uterus in 106 childbirths." Pouliot and Truchard's comment on this is as follows: "One might suppose, from reading these lines, that Mundell, forced by results that he had observed, would declare himself an implacable adversary of the use of pituitary extract. But, on the contrary, the author remains an outspoken advocate of this form of medication, provided the proper dose is not exceeded and the contraindications are carefully considered." The truth is, the "outspoken advocate" of pituitary extract wrote in the concluding paragraphs of his article (THE JOURNAL, June 2, 1917, p. 1604): "Obstetricians generally are coming to realize that the child has a right to be born alive, and that the license to practice medicine does not carry also a license to execute an unborn child or a mother. Pituitary extract probably has a place in the obstetrician's armamentarium, but for its undoubted bad effects on the child primarily, and on the mother in less degree, it would seem that its field of usefulness is indeed limited."

How can the author of such a statement be referred to as an "outspoken advocate" of the use of pituitary extract in obstetrics? The presumption is that Pouliot and Truchard, convinced of the correctness of their interpretation, did not read Mundell's article to the end but confined their attention to the first part, which dealt solely with cases of ruptured uterus. But why consider pituitary extract solely from the standpoint of ruptured uterus, which is far from being the only argument presented by its opponents? Do not thirty-four cases of fetal death and forty-one cases of asphyxia pallida among 1,293 childbirths collected by Mundell deserve consideration?

Vital Statistics for Large Cities: 1923

The Alliance nationale pour l'accroissement de la population française has published the vital statistics of the ten largest cities of France for 1923.

Paris shows a decrease over the preceding year in the number of births of 1,590; Bordeaux, 164; Nantes, 254; Toulouse, 68; Saint Etienne, 98, and Havre, 100. The following cities show an increase over 1922: Marseilles, 197; Lyons, 183; Lille, 69, and Strasbourg, 194. The net result is a diminution of 1,631 births.

The number of marriages in 1921 was 73,251; in 1922, 63,840, and in 1923, 59,227, which decrease will unfavorably affect the birth rate during the next few years. The number of deaths in 1921 was 86,614; in 1922, 84,778, and in 1923, 84,552.

BELGIUM

(From Our Regular Correspondent)

Feb. 6, 1924.

Shall Children Be Instructed on Sex Matters?

The Ligue de l'enseignement de Belgique submitted to an assembly of physicians and teachers the following question: Does ignorance of sex matters in children contribute to the spread of venereal disease? The assembly was of the opinion that the lack of instruction on this subject is a defect in our educational system. The committee held that it would be advisable to organize systematic courses of instruction which are adapted to the age of the pupils to prepare them to understand the physical and moral importance of reproduction. It was pointed out what primary teachers could do to prepare for more definite instruction in later grades.

It would be advisable to organize also in the normal schools a special course for teachers in sex education.

In the primary grades instruction would begin with a study of fecundation in the vegetable kingdom. In grammar school, it would continue first with a study of reproduction in oviparous animals, and later in viviparous animals. Pupils thus prepared would eventually be given instruction in the development of the human embryo.

A Course in Physiotherapy

A course in physiotherapy has been organized in the medical school of the University of Brussels, which will be in charge of Associate Professor Gunzburg. His first lecture was on "Physiotherapy in General and Light in Therapeutics."

The Specific Action of Radiations

At the recent Cancer Convention in Brussels, Professor Ghilarducci of Rome presented an interesting communication on the specific action of radiations. The action of radiations from a roentgen tube and from radium are not essentially the same. Ghilarducci first demonstrated this fact by the effect of radiations on micro-organisms; then he showed that on tissues one could secure different actions (phlogogenic, sclerotic, or necrotic), depending on the quality of the rays.

Ghilarducci has introduced what he terms "the variable filtration method" of treatment. He gives at one sitting radiations which subject the tissues to distinctly different actions. The result is a rapid disappearance of certain tumors. He has treated eighty patients with remarkable results.

The Origin and Nature of Cancer

Professor Roussy's participation in the Cancer Convention was much appreciated, and his discussion of the origin and nature of cancer was especially interesting. Age, climate and race are by no means the important etiologic factors they were formerly supposed to be. The same is true of contagion and heredity. As for the so-called precancerous states, such as chronic inflammatory or irritative lesions, Roussy thinks that their significance has certainly been exaggerated. Without doubt, cancer appears on the site of previous lesions, but it should be recognized that these precancerous states do not necessarily develop into cancer, and that cancer is likely also to appear in healthy tissue.

The experimental production of cancer, particularly tar cancer, has proved the multiplicity of the causes of cancer, and that it is frankly different from inflammatory processes whose etiology we know.

Artificial impregnation, which may be assumed to be a physicochemical phenomenon, suggests certain things, for there is much analogy between the phenomena of impregnation and cancerization. It seems possible that there is some connection between them from the biologic point of view. The stimulus, the first thing which starts a cancer, is possibly of a physicochemical nature.

Combined Roentgenologic and Surgical Treatment of Cancer of the Breast

At the same assembly, Dr. Spinelli explained his method of roentgenologic and surgical treatment of cancer of the breast. He uses roentgen irradiation *à porte ouverte;* that is, on tissues from which the skin has been removed and the neoplasm extirpated at operation. He has applied this method to cancers declared to be inoperable and which consequently could be regarded almost hopeless; of nine patients treated, six are living, four of which date back from one year and a half to two and a half years. They are in good health and have had no recurrences. In the other two cases, which go back twenty-nine and twenty-six months, respectively, the patients have had recurrences. With 66 per cent. of patients living and 44 per cent. with no recurrences, the author considers the results very favorable, considering the advanced stage of the disease.

Blood Platelets

Before the Royal Society of Medical and Natural Sciences of Brussels, Dr. Govaerts presented a communication on the rôle of blood platelets in health and disease. He studied their rôle in the coagulation of blood, and in anaphylactic shock. He ascribes to them the power to engulf certain micro-organisms and to eliminate foreign bodies introduced into the blood. He pointed out the parallelism between the activities of the platelets and the phagocytes, and explained the part they play in hemophilia, purpura and scurvy.

Sanitation as Applied to Dwellings

The need of suitable dwellings has given an impetus to hygienists to study the sanitary construction of moderately priced homes. Dr. Putzeys, professor emeritus of public health in the Faculté de médecine of Liége, published an article in the review *Bâtiment et travaux publics*, in which he advises that dwellings should not be so close together that air cannot circulate about them. For a family of five he recommends a dwelling of three rooms and bath, with a floor space of 45 square meters, or 9 square meters per person, with ceilings 3 meters high, so that each person would have 27 cubic meters of air space. The dwellings should be 10 meters long and 12 meters high, well raised from the ground, with no basement. There should be a terraced lawn in front. The street should be 12 meters wide and preferably run north and south.

Tuberculous Fistulas After Nephrectomy

At the Flemish congress of surgery and gynecology at Louvain, Dr. Sebrechts of Bruges reported a new method for nephrectomy for tuberculous kidney. In view of the postoperative fistulas that result from tuberculous lesions of the ureter, Sebrechts recommends the following technic designed to prevent the development of fistulas: (1) delivery of the kidney; (2) dissection of the ureter; (3) section and hemostasis with two pedicles of the hilum, care being taken not to injure the calix or the ureter; (4) the kidney, still attached to the ureter, is brought down to the inferior angle of the wound; (5) a drain and an iodoform gauze wick are introduced at the upper edge of the wound, which is then sutured in two planes, and (6) the kidney is raised to stretch the ureter moderately. The ureter is wrapped with iodoform gauze. A ligature is tied about the ureter which now is divided with a cautery. In this manner, the stump of the ureter projects outside of the wound, which is not contaminated by it, and the iodoform gauze prevents the ureter from retracting within the wound. After two weeks, the stump of the ureter is cut away, unless it has become detached spontaneously through necrosis, which frequently occurs.

Resection of the Gasserian Ganglion

In a previous letter I referred to the good results secured by Professor de Beule in brain surgery, particularly in resections of the gasserian ganglion. Speaking before the Société belge de chirurgie recently, he gave further details for uncovering and severing the posterior root of the gasserian ganglion.

For the most direct route, one must follow the anterior surface of the petrous portion of the temporal bone and under no pretext swerve to one side. If this technic is adhered to, one is sure to reach the root, which crosses the upper margin of the bone near the tubercle of "Princeteau." There is no need of seeking other guide-marks, and it is hard to understand why some surgeons make a systematic search for the inferior maxillary nerve, and follow it back until they reach the ganglion and the root. The root, the ganglion, and the emerging portion of the inferior maxillary nerve, are readily disengaged if the anterior surface of the petrous portion is followed.

It is necessary to detach the dura mater until the cerebrospinal fluid gushes forth. The opening of the dura is accomplished without difficulty, but the author never resorts to a cutting instrument.

If, in dissecting the root, the carotid artery has been unintentionally injured, because a normal bony floor did not exist,

the author always introduces under the root the point of a sound with a rightangled bend. With this he seizes the nerve bundle and divides it in the angle of the sound.

MADRID

(From Our Regular Correspondent)

Jan. 30, 1923.

Changes in the Public Health Service

The recent "pronunciamiento," one of many similar events in Spanish history, met a favorable reception. Dr. M. Martin Salazar, director general of public health, resigned the position he had filled for many years. The government accepted his resignation, and appointed to replace him Dr. F. Murillo, who has also distinguished himself in public health in Spain.

Extension of the Cancer Institute

In a previous letter, mention was made of the fact that the cancer institute had been opened and a prominent surgeon, Dr. Goyanes, made its chief. The work so far carried out has shown such an increase that the building has proved too small, and the king has suggested transferring the institute to a large building called Parisiana, formerly used as a gambling place. In order to carry out the necessary improvements, an appropriation of 500,000 pesetas ($65,000) has been provided. The new hospital will have over 200 beds and will make available an enormous amount of treatment and research material.

Child Welfare in Spain

Dr. Garrido-Lestache, in a recent lecture, described the actual condition of infant and child welfare work in Spain. Statistics show that the birth rate is decreasing. In 1903, the birth rate was 36 per thousand; by 1908 the figures had decreased to 34.2. Every year 40,000 children die of diseases of nutrition, a loss that could be prevented if maternal nursing were carried out more fully and under better conditions. A few months ago, a maternity assistance measure was instituted consisting in a gift of 50 pesetas ($6.50) which the government grants to indigent mothers through the national institute of prevention. Dr. Garriño-Lestache asked: "Can anybody believe that this small amount may have the least influence on the welfare of either mother or child? It may perhaps allow a more expensive christening, but will not cover any real need. Any maternity allowance, to be really effective, must be sufficient to pay for necessary clothing, food and medicines, but under proper supervision."

The Spanish pediatrician who did most for the child from a social standpoint was Dr. Tolosa-Latour, through whose efforts child welfare legislation was enacted in 1904, similar to that which has been in force in Austria since 1824, in England since 1832, and in Germany and France since 1874. After a few years the government finally granted an appropriation of 30,000 pesetas (less than $6,000) to the superior council of child welfare in order to enforce the comprehensive law mentioned above. In 1910, however, a law was enacted providing for this purpose a 5 per cent. tax on all public amusement tickets. This yields some funds in the large towns, such as Madrid and Barcelona, but in the other parts of the country the results have been nil. It is noteworthy that the Cartagena provincial board has organized a daily raffle through which it gets a daily income of 1,200 pesetas ($150) to bear the expenses of the law. This procedure has been copied in other provinces, such as Alicante, Melilla and Malaga.

In 1918, juvenile courts were organized, and some time afterward an appropriation of 450,000 pesetas was allowed for their support, including the organization of reformatories. The Spanish law for child labor includes in its provisions children up to 10 years of age and, in special cases, up to 14 years. For all the expenses of juvenile courts, maternity grants and mother welfare, inspection of nurseries and shops, support of deserted children, and child health supervision, there is available about 2,000,000 pesetas ($260,000). Dr. Garrido-Lestache ended his lecture by quoting some remarks by Dr. Pulido, the president of the superior board of child welfare, as to the need of an early improvement in existing conditions, and recalled that when they interviewed the secretary in charge to enlist his enthusiasm in the same cause, this official cut short their conversation by saying, "This infant protection business is just a lot of piffle."

New University Building

In the most beautiful place in Madrid, La Moncloa, amid the Guadarrama heights, work will begin next month on the so-called University City. At the same time there will be laid the cornerstones of the buildings intended for the schools of medicine, science, pharmacy, architecture and fine arts. The new government has already laid aside five million pesetas ($650,000) to start these buildings. This new construction will take the students out of the crowded districts where the teaching centers are now located, to a new place where the best mountain air will purify their lungs. As regards the medical school, the dean, Dr. Recasens, and the professor of odontology, Dr. Aguilar, have assumed from the beginning the hard task of making a fact of an idea that most people considered a dream.

BERLIN

(From Our Regular Correspondent)

Feb. 2, 1924.

Physicians and the Health Insurance Societies

The resolution adopted by the executive committee of the Leipzig League, January 19, supposedly put an end to this conflict, but it is a question how many health insurance societies will permit physicians to resume practice under the old contracts. In Berlin, only ten societies have agreed to that arrangement. The largest societies are holding out, and the reason may be found in the last negotiations before the Berlin *Versicherungsamt*. Negotiations were to have been held, January 31, but representatives of the health insurance societies did not appear. A communication from the societies that are holding out imposes certain conditions as the basis of resumption of relations, showing they desire to continue the conflict. The *Oberversicherungsamt* demanded that the *Krankenkassen* furnish proof by February 1 that their members are receiving adequate medical attention. It is evident they are not receiving the care to which they are entitled. It remains to be seen what resistance the *Krankenkassen* will offer to these demands. For the present, members of health insurance societies will be treated on the basis of the fee schedule which applies to private patients, except in organizations that have made peace, in which they will be treated on the basis of the old contracts.

A Benefit Fund for Physicians

At its next session, the Berlin Aerztekammer will consider the creation of a fund that will provide some protection against disability and old age for its members, and, in case of death, a benefit for their families. This fund will give physicians an annuity at the age of 70; a benefit in case of disability; life insurance amounting to twice the annual disability benefit, and an annuity of 50 per cent. of the annual disability benefit for widows and of 20 per cent for orphans. Bachelors and widowers will receive 25 per cent. additional to their old-age or disability benefit, as compensation. Physicians, aged 60½ who take out insurance, pay 50 per cent. of the ordinary dues, but they are entitled to life insurance only. This, however, is twice the usual amount. The ordinary dues for qualified physicians will be 6 per cent. of the

annual net income. The administration of the fund will be entrusted to the Versicherungskasse der Aerzte Deutschlands.

Public Health Work in Russia

Prof. N. Semaschko, the Russian commissioner of public health, has described in the *Deutsche medizinische Wochenschrift* the public health work in soviet Russia. The organization of all sanitary and medical control measures rests with the commissioner in Moscow and his assistants. The Scientific Medical Council assists in an advisory capacity. It is composed of thirty members; it elects new members when vacancies occur, and it passes on measures proposed by the public health commissioner. For the study of scientific problems closely connected with the development and amplification of the public health service, a number of institutes have been established in Moscow, Petrograd and in the provinces which conduct scientific investigations. The most important of these is the State Scientific Institute for Public Health, which has several branches. Other public welfare institutions have been founded, such as: consultation centers, infant welfare stations, sanatoriums, homes for convalescents, outdoor schools in the woods, which serve as models for similar institutions in other parts of the country. As subdepartments of the central office, there are offices for the various districts and provinces. These are a part of the local government and are controlled by executive committees. These district and provincial health offices are also divided into departments, the size and importance of which depend on the population of the district. The public health service of the railroads is administered by special railroad public health offices. There are special offices which control navigation, so as to prevent the introduction of epidemic diseases. The public health commissioner has general control over spas and health resorts. Special sanitary bureaus administer the health service of the army and navy. The autonomous republics have their own public health commissioners, who work in harmony with the commissioner's office in Moscow.

The Roentgen Memorial Room

Reference was made in a previous letter to the Roentgen memorial room. It is the former laboratory of Professor Roentgen in the Physical Institute of the University of Wurzburg. A large part of his original apparatus is still set up, and most of it was made by him. Here are the first roentgen tubes, and the original photographs that led to his discovery. A cabinet contains the medals and other presentations received by Roentgen from the Nobel Foundation and various institutions. By his work table is a complete collection of his publications. There is a bust of Roentgen in the room.

Marriages

GEORGE B. HARRISON, Fredericksburg, Va., to Miss Florence Kimbrough Jackson of Lynchburg, Dec. 15, 1923.

WILLIAM HARVEY DIXON, Rocky Mount, N. C., to Miss Margaret Freeborn Betts of Richmond, January 19.

HARRY LEE CLAUD, Newport News, Va., to Miss Julia Marvin Sarvey of Norfolk, January 5.

ARLEY I. MUNSON, New York, to Mr. James Alexander Hare of Passaic, N. J., February 16.

LAWRANCE O. SNEAD, Richmond, Va., to Miss Empsie Shapard, Halifax, February 9.

WILLIAM FRANKMAN, Boston, to Miss Nina Nabatoff of Detroit, February 13.

WILLIAM BERNARD YEGGE to Miss Elsie Bonsteel, both of Denver, January 16.

SANFORD M. WITHERS to Miss Matilda Bransetter, both of Denver, January 18.

WILLIAM M. GREIG, JR., to Miss Ruth Shade, both of Denver, January 26.

Deaths

R. Walter Mills ⊕ St. Louis; Marion-Sims Beaumont Medical College, St. Louis, 1902; formerly instructor in pathology, bacteriology and medicine at the Washington University Medical School, St. Louis; member of the Radiological Society of North America and president of the American Gastro-Enterological Association; formerly on the staff of the Washington University Hospital; aged 45; died, February 16, at St. Mary's Hospital, Rochester, Minn., of acute lymphatic leukemia and appendicitis.

Peter George McKenna, Canton, Mass.; Baltimore (Md.) Medical College, 1911; served in the M. C., U. S. Army, in France, with the rank of captain, during the World War; formerly on the staff of the Providence Hospital, Washington, D. C.; aged 40; died, February 3, at the Boston City Hospital, following a long illness resulting from wounds received in the World War.

Herman W. Hechelman ⊕ Pittsburgh, Jefferson Medical College of Philadelphia, 1869; formerly professor of ophthalmology and otology at the Western Pennsylvania Medical College, Pittsburgh, and on the staffs of the Allegheny General, the Passavant and the Western Pennsylvania hospitals; aged 75; died, February 7, of senility.

George Augustus Rogers ⊕ Newark, N. J.; Medical Department of Columbia College, New York, 1892; member of the American Association of Anesthetists; on the staffs of the Hospital for Women and Children, and the Beth Israel Hospital; aged 53; died suddenly, January 27, of heart disease.

John W. Lauder, Afton, Ia.; State University of Iowa College of Medicine, Iowa City, 1874; member of the Iowa State Medical Society; formerly member of the state legislature; aged 71; died, February 4, at the Greater Community Hospital, Creston, following a long illness.

Clarence C. Howard, New York; New York Homeopathic Medical College, New York, 1884; formerly clinical professor of nervous diseases at the New York Medical College Hospital for Women, New York; on the staff of the Metropolitan Hospital; aged 62; died, February 15.

Samuel Cecil Leonard, Hanover, Ont., Canada; University of Toronto (Ont.) Faculty of Medicine, 1918; on the staff of the Minnequa Hospital of the Colorado Fuel and Iron Company, Pueblo; aged 44; died, February 6, of a skull fracture received in an automobile accident.

Edward Morton Leach, Rochdale, Mass.; Albany (N. Y.) Medical College, 1893; member of the Massachusetts Medical Society; formerly member of the board of health and school board; aged 54; died suddenly, February 1, of cerebral hemorrhage.

Frank Jasper Gale, Westboro, Mass.; New York Homeopathic Medical College and Hospital, New York, 1896; on the staff of the Westboro State Hospital, where he died, February 7, following an appendectomy, aged 53.

Calvin Jenkins Morrow ⊕ Kansas City, Mo.; Missouri Medical College, St. Louis, 1884; formerly professor of proctology at the University of Kansas School of Medicine, Kansas City; aged 63; died recently, of carcinoma.

Harry Havelock Etter, Alameda, Calif.; Jefferson Medical College of Philadelphia, 1922; intern at the Jefferson Medical College Hospital, Philadelphia, where he died, February 9, of streptococcus sore throat, aged 26.

George Cunningham, Vineland, N. J.; Jefferson Medical College of Philadelphia, 1897; aged 60; died, February 10, at the Jefferson Hospital, Philadelphia, of septicemia, contracted through an abrasion on his wrist.

Otis Orendorff ⊕ Canon City, Colo.; Marion-Sims College of Medicine, St. Louis, 1893; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 53; died, February 5, of pneumonia.

Andrew Edward Miller ⊕ Metropolis, Ill.; Medical College of Ohio, Cincinnati, 1900; formerly on the staff of the Walbright Hospital; aged 52; died, February 9, of myocarditis and nephritis.

William Alexander Stanley ⊕ Lakeland, Fla.; Cleveland (Ohio) Medical College, 1895; formerly a practitioner in Ohio; aged 55; died suddenly, January 29, of cerebral hemorrhage.

⊕ Indicates "Fellow" of the American Medical Association.

John W. Hamilton, Bushnell, Ill.; State University of Iowa College of Medicine, Iowa City, 1883; Civil War veteran; aged 79; died, February 3, at St. Francis' Hospital, Macomb, of senility.

Hovhannes Artyn Kambourian, New York; Syrian Protestant College, Beirut, Syria, 1905; formerly assistant professor of anatomy at his alma mater; aged 41; died, February 1, of pneumonia.

Claybrook Fauntleroy, Dragonville, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1882; member of the Medical Society of Virginia; aged 65; died, January 10.

Harry V. Abbott, Shepherd, Mich.; Cincinnati (Ohio) College of Medicine and Surgery, 1902; member of the Michigan State Medical Society; aged 52; died, February 5, of heart disease.

Edgar E. Barker, Portland, Me.; Kentucky School of Medicine, Louisville, 1903; member of the Maine Medical Association; aged 71; died suddenly, January 13, of heart disease.

Elmer E. Wells, Ironton, Ohio; Starling Medical College, Columbus, 1887; member of the Ohio State Medical Association; aged 62; died, February 2, following a long illness.

Cornelius P. Paxton, California, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1905; aged 47; died, February 7, at the Pennsylvania State Sanatorium for Tuberculosis.

Homer Leonard Wells, San Diego, Calif.; Eclectic Medical Institute, Cincinnati, 1878; aged 84; died, February 6, of injuries received when struck by a street car.

Paulus Fitz James Miller, Virginia Beach, Va. (years of practice); member of the Medical Society of Virginia; aged 69; died, January 19, following a long illness.

Samuel A. McDonald, Linden, Tenn.; Vanderbilt University Medical Department, Nashville, 1876; aged 72 died recently, at Tulsa, Okla., of cerebral hemorrhage.

David S. Bradford, Janesville, Iowa; Albany (N. Y.) Medical College, 1866; member of the Iowa State Medical Society; aged 83; died, February 2, of senility.

William F. Walker, Preston, Ga.; Louisville (Ky.) Medical College, 1888; member of the Medical Association of Georgia; aged 58; died, January 31.

James Knox Schooler ✠ Jasper, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1895; formerly a druggist; aged 54; died, February 6, of pneumonia.

Ferdinand Brase, Jackson, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1892; aged 60; died, February 5, following a long illness.

Lashbrook Bryceson Laker ✠ Eureka, Utah; Rush Medical College, Chicago, 1903; aged 49; died, February 7, in a hospital at Salt Lake City.

Elgar Reed ✠ Chino, Calif.; Cincinnati (Ohio) College of Medicine and Surgery, 1893; aged 58; died, February 13, of cerebral hemorrhage.

John Crombie Burt, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1881; died recently, of bronchopneumonia.

Charles Sumner Musser ✠ Aaronsburg, Pa.; Jefferson Medical College of Philadelphia, 1880; aged 67; died, January 29, of pneumonia.

Henry J. Abernathy, Hot Springs, N. M.; Nashville (Tenn.) Medical College, 1878; aged 68; died, Dec. 8, 1923, of mitral regurgitation.

Charles B. Stewart, Walla Walla, Wash.; Jefferson Medical College of Philadelphia, 1888; aged 66; died, February 2, of heart disease.

John J. Howard ✠ Detroit; Detroit College of Medicine and Surgery, 1893; aged 57; died, February 4, following a long illness.

William Arthur Perrins, Boston; Eclectic Medical Institute, Cincinnati, 1881; aged 64; died, February 9, following a long illness.

George Perry Sylvester, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1875; aged 70; died, January 13.

Augustus Moody Burt, Macon, Ga.; Louisville (Ky.) Medical College, 1873; aged 73; died, January 19, of senility.

W. Marion Barritt ✠ Union, Neb.; Medical College of Ohio, Cincinnati, 1883; aged 77; died, January 17, of pneumonia.

Ozias S. Chapman, Minneapolis; Medical College of Ohio, Cincinnati, 1865; aged 84, died, February 5, of senility.

Finis Jackson Dickey, Dallas, Texas; Pulte Medical College, Cincinnati, 1879; aged 69; died, February 14.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

CITROPHAN

Another "Fat Cure" Nostrum Exploited to the Medical Profession and the Public

"Citrophan" is one of the latest "patent medicines" to be exploited to the obese. It is put on the market by the Gotham Corporation which does business from New York City. This concern was incorporated in Delaware in February, 1922, and is nominally located with the United States Corporation Company at Dover, Delaware.

In July of last year an advertising man who is particular about the class of clients he serves, wrote that a "Dr. Edwin F. Bowers" had called on him and told him that a Mr. Albert Freeman of New York "had employed him [Bowers] to put Citrophan on the market." Before going any further in the story of Citrophan it is well to give readers of THE JOURNAL such information as our files contain under the names Edwin F. Bowers and Albert Freeman.

EDWIN F. BOWERS THE FAKE M.D.

Edwin F. Bowers puts the prefix "Dr." before his name and the suffix "M.D." after his name. Although for years he has termed himself a physician, in attempts to capitalize the deceit, our records show that Bowers is not a graduate in medicine, never attended any medical college as a student of medicine and is not licensed to practice medicine in any state in the Union. According to the Attorney-General of the State of New York, Bowers himself has admitted as much when he was "called on the carpet" by that New York official following the publication of an article by Bowers telling how locomotor ataxia could be cured with a milk diet. The article in question appeared in *Physical Culture*, that haven for medical and quasi-medical fads, fakes and frauds.

Bowers has written reams of quasi-scientific buncombe both in popular magazines and cheap medical journals. He has puffed nostrums, quackeries and commercialized fads, medical and others. After publishing his article on the "milk cure" for locomotor ataxia Bowers received letters from poor devils suffering from that disease who wrote to him for further information. He immediately sent them advertising circulars on "Bioplasm (Bower)" and told his enquirers that he had "seen some extraordinary results" from the use of this preparation. Bioplasm is a fake that was exposed years ago by THE JOURNAL. At the time the president of the Bioplasm concern was one Edwin F. Bowers. A little more than a year ago Bowers was mixed up with another "obesity cure" fake, Graham's "Neutroids" exposed in this department of THE JOURNAL, Sept. 30, 1922. This will be referred to again later.

ALBERT FREEMAN, PROMOTER

The Propaganda files also contain the name of an Albert Freeman who seems to have an interesting history and, from the evidence at hand, appears to be the Albert Freeman who is behind the Citrophan exploitation. Albert Freeman is said to have come to the United States from Austria some years ago and to have been in the insurance business. It is also claimed that he was for about a year a member of the Consolidated Stock Exchange of New York which suspended him in 1902. After certain other financial vicissitudes Freeman seems to have promoted various mining schemes. In December, 1911, Albert Freeman, promoter, Julian Hawthorne, novelist, and Dr. William J. Morton, physician, were indicted by the federal authorities on the charge of using the mails to defraud. The case came to trial in November, 1912. The newspaper reports at the time record that the government charged fraud against these individuals in a mining company promotion and charged, too, that it was Freeman who originated the idea of utilizing the name of Julian Howthorne, the novelist, as a special attraction. The case was bitterly fought

and dragged through the United States District Court for three months. The federal judge before whom the trial began became ill during the case, and his place had to be filled by another judge. At the time of the trial the defendants agreed to accept the second judge to finish out the case in order to save the two months' work already done. The New York *Tribune* in summing up the case said at the time:

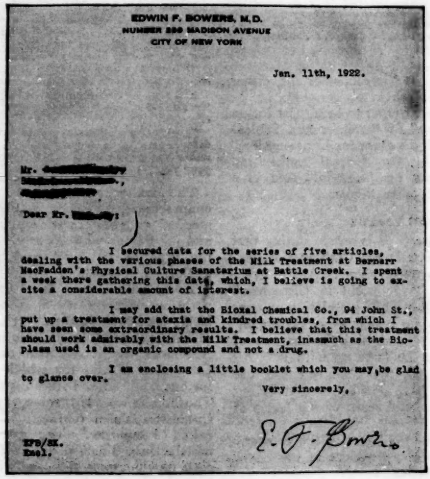
"The evidence adduced at the trial showed that the public had contributed $600,000 on the strength of the representations made as to the value of the mines promoted. Of this, $176,000 went for development work. Freeman got $50,000 and Dr. Morton $64,000. The government contended that, figuring the cost of selling the stock at six cents a share, there remained $175,000 to be accounted for, which probably, the prosecutor said, had gone to Freeman and some of the other defendants."

The jury returned a verdict of guilty against Freeman, Hawthorne and Morton. Freeman was sentenced to serve five years in the federal penitentiary and the other two men one year, each. Quoting again from the New York *Tribune*, this time of March 15, 1913:

"Judge Mayer imposed sentences immediately, declining to consider the plea for suspended sentences for Mr. Hawthorne and Dr. Morton, although he expressed sympathy for both of them. He sentenced Freeman, whom he declared to have been the brains of the scheme, to an aggregate of five years and three days in the penitentiary at Atlanta, Ga., the term to be computed from January 1. In the case of Mr. Hawthorne and Dr. Morton the sentence was one year and one day in the Atlanta prison, to be dated from November 25, the day the trial began."

Mr. Hawthorne and Dr. Morton went to the Atlanta Penitentiary and served their terms. Freeman, by technicalities, kept out of the penitentiary, although he was held in the Tombs for about ten days pending an appeal. He was then released on a $150,000 bond. This was in April, 1913. More than two years later, in August, 1915, Freeman was granted a new trial on the ground that the same judge had not been on the bench continuously throughout the original trial. More than a year later still, in December, 1916, Freeman was tried again and the case resulted in a "hung" jury, seven voting for conviction. A few weeks later Freeman came into court again, pleaded guilty and was fined a mere $3,000. In imposing the fine the judge is said to have severely arraigned Freeman and declared that he did not consider the sentence adequate punishment and added: "I only impose this sentence because the government has consented to it, and because after years have passed and two trials have been held a jury was loath to convict."

The newspaper reports at the time stated that Freeman seemed not to be affected by the judge's words "and when the fines had been imposed he stepped forward briskly and peeled the amount of the fines from a roll of thousand dollar bills."



EDWIN F. BOWERS, M.D.
NUMBER 280 MADISON AVENUE
CITY OF NEW YORK

Jan. 11th, 1922.

Mr. [redacted],

Dear Dr. [redacted]:

I secured data for the series of five articles, dealing with the various phases of the Milk Treatment at Bernarr MacFadden's Physical Culture Sanatarium at Battle Creek. I spent a week there gathering this data, which, I believe is going to excite a considerable amount of interest.

I may add that the Bioxal Chemical Co., 94 John St., put up a treatment for ataxia and kindred troubles, from which I have seen some extraordinary results. I believe that this treatment should work admirably with the Milk Treatment, inasmuch as the Bioplasm used is an organic compound and not a drug.

I am enclosing a little booklet which you may be glad to glance over.

Very sincerely,

E. F. Bowers

EFB/EK.
Encl.

Edwin F. Bowers, after publishing his article on the "milk cure" for locomotor ataxia, received letters from persons suffering from tabes. He immediately sent them advertising circulars puffing "Bioplasm," a fake that was exposed in THE JOURNAL many years ago. Above is a photographic reproduction of one of the letters sent out by Bowers at the time. Note that on his stationery he adds to his name "M.D.," although he has no right to.

HERMAN H. RUBIN, MEDICAL DIRECTOR

Now, to get back to "Citrophan." The nostrum is advertised and sold to the public on the mail-order plan. An elaborate colored circular, illustrated pamphlets and the inevitable batch of testimonials are being used in their exploitation. The "Medical Director" of the Gotham Corporation is one Herman H. Rubin, M.D. In one of the pieces of advertising that forms the Citrophan "come on" literature is a letter from Rubin addressed to the "Dear Madam" who happens to be suffering from obesity. In this Rubin tosses himself the following bouquet:

"I am a licensed physician enjoying an extended [*sic!*] practice as an Obesity Specialist. Through my activities in the American Medical Association and in the New York State and County Societies as well as from my experience as Chief Medical Clinician of Beth David Hospital and Physician to the Mt. Sinai Hospital, I know that the removal of excess fat is a matter of vital importance both to the Medical profession and to a large number of their patients.

"In my broad experience, I have prescribed everything that has shown any promise of relief. But only lately have I found what I consider the ideal treatment. This is the Citrophan Treatment."

According to our records, Herman H. Rubin was born in Russia in 1891. He received a diploma in 1915 from the Long Island College Hospital and was licensed the same year to practice in New York. Just what Rubin's "activities" have been in the American Medical Association and in the New York State and County Societies, we do not know. Possibly his county society can find out. A careful search fails to show that Rubin has ever made any contribution to medical literature. Since going into the "obesity cure" mail-order business Rubin also seems to have branched out into another line of equal scientific import. A physician in the South wrote to THE JOURNAL a few days ago asking for "data on the Radiendocrinator, the device of Herman H. Rubin, M.D., of the American Endocrine Laboratories." The "Radiendocrinator," it seems, is a gold-covered device, ⅝ of an inch thick and 2 inches by 3 inches in size. It is to be worn over the "endocrine glands while asleep." The individual who wishes to be rejuvenated fills in a chart, sends it in to the exploiters with a check for $1,000 and gets his "Radiendocrinator." Our correspondent was anxious to get information because, as he put it, he had "a wealthy patient who is about to bite at this $1,000 magic." As Colonel Sellers said of his marvelous eye-wash, "There's millions in it."

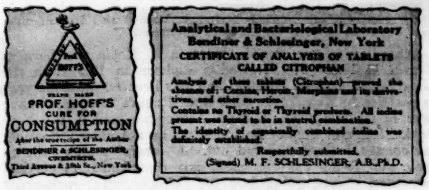
SOME OF THE TESTIMONIAL GIVERS

An important part of the advertising hokum of the Citrophan exploitation is a "Report of Dr. Edwin F. Bowers"; its value can be estimated from the information already given regarding Bowers himself. Still another testimonial is one from Susanna Cocroft, who sells "courses" in exercise on the mail-order plan. She states that she has used "Citrophan" four days and reduced four pounds. She goes on to state that, while her method "is exercise and diet," she is "convinced that Citrophan solves the problem" for those who do not want to exercise or diet. Susanna also seems to furnish the Gotham Corporation with a "sucker list" for she states that she is sending the concern some names of her "students" to whom she suggests they might send Citrophan "literature."

Benjamin T. Whitmore, M.D., is another individual who furnishes testimonials for Citrophan. Accompanying the reproduction of Whitmore's puff there is a letter from Albert Freeman. In this letter Freeman attempts to bolster up these weak props by boosting Bowers and Whitmore. Of Whitmore, Freeman says:

"He [Benjamin T. Whitmore] is a big man in the Medical Profession. He is a member of the American Medical Association; of the Chicago Medical Society; of the Mississippi Valley Medical Association."

According to our records, Whitmore claims a diploma from the Kentucky School of Medicine in 1876 and from the St. Louis Medical College in 1877. He attempted to get a New York license in 1906 and in 1914 and failed in both instances but seems to have been finally granted a license on "years of practice." As to Freeman's statement that Whitmore is a member of the American Medical Association and the Chicago Medical Society it is sufficient to say that both these state-


PROF. HOFF'S
CURE FOR
CONSUMPTION
BENDINER & SCHLESINGER,
Third Avenue & 10th St., New York
Analytical and Bacteriological Laboratory
Bendiner & Schlesinger, New York
CERTIFICATE OF ANALYSIS OF TABLETS
CALLED CITROPHAN
Analysis of these tablets (Citrophan)—proved the
absence of: Cocaine, Heroin, Morphine and its deriva-
tives, and other narcotics.
Contains no Thyroid or Thyroid products. All iodine
present was found to be in neutral combination.
The identity of organically combined iodine was
definitely established.
Respectfully submitted,
(Signed) M. F. SCHLESINGER, A.B.,Ph.D.

On the right is a photographic reproduction (reduced) of the "Certificate of Analysis" testimonial used by the Citrophan people, and coming from Bendiner & Schlesinger. On the left is a photographic reproduction (reduced) of "Prof. Hoff's Cure for Consumption," also put out by Bendiner & Schlesinger. When the federal Food and Drugs Act made lying on the label illegal, "Prof. Hoff's Cure for Consumption" became "Prof. Hoff's Prescription."

ments are false. Whitmore is not a member of either organization.

Still another puff for Citrophan purports to be a "Certificate of Analysis" from the "laboratory" of Bendiner and Schlesinger. This concern exploited "Hoff's Cure for Consumption," which was declared a fraud by the federal authorities. Bendiner and Schlesinger also put out "Kosmol" sold as a cure for "red noses" and several other things.

THE STOCK-SELLING SCHEME

Before discussing the product itself, it is worth noting that Mr. Freeman is trying to sell stock in the Gotham Corporation. In a four-page typewritten letter signed "Albert Freeman," we read that "there is a large profit in Citrophan," that "more than 50 per cent. of the adult population is over weight" and that there seems to be no reason why "Citrophan" cannot be made a household word and thus "a business of several million dollars yearly can be built up with it." All of which leads up to the statement that "we can now use additional working capital" and have decided to sell "about 1,200 shares of the 8 per cent. preferred stock with a bonus of 100 per cent. common."

Mr. Freeman emphasizes that the president of the company is one I. J. Muurling who used to be president of the Bayer Company, the aspirin concern. Thus, in the strain of the typical promoter, Mr. Freeman finally declares that they "should be able within a reasonably short time to build up a $5,000,000 yearly business." Mr. Freeman then adds that the price is $100 per share and suggests:

"You may send your subscription to me for the Gotham Corporation, but do not send it through a broker, as the company will pay no commissions. . . ."

Mr. Freeman encloses a blank order-form for the prospective sucker to sign on the dotted line and adds the enlightening statement that not only is he "an important shareholder in the company" but he has "more money in it than any one connected with it." Accompanying the stock-selling letter of Mr. Freeman is a letter of the same tenor by I. J. Muurling, the president. In the first paragraph of his letter Muurling states that one Frederick L. Childs is vice-president of the "Citrophan" concern. The name of Frederick L. Childs appears in the Propaganda files as one who used to live at Kalamazoo, Mich., and was vice-president of the J. Lawrence Hill "Consumption cure" fraud and also a part owner of a Kalamazoo "patent medicine" concern.

WHAT IS CITROPHAN?

Nowhere is any information given as to the composition of Citrophan. It is true that this nostrum is heralded in full page advertisements in the *Medical Review of Reviews* and the *Medical Times*, although the former declares that "nostrums with secret formulæ are excluded from its pages." These same journals have carried puffs for the same product in the form of "original articles." The only statement bearing on the identity of "Citrophan" is the claim that it is "a new organic iodin compound."

The claims made for "Citrophan" are many and various. Back of all of them is a fundamental thesis developed by the exploiters and expressed in the advertising, thus:

"Science has found that the chief cause of obesity lies in the *development of alcohol in the digestive tract*, brought about by the action of *yeast bacteria*—taken into the stomach in improperly baked bread—and on raw fruit and vegetables."

Here it may be said that this basic claim is utterly unsupported by scientific work. There are many types of obesity and there are undetermined causative factors in all of them but science has *not* found that the chief cause of obesity is due to the development of alcohol in the digestive tract. As the foundation is false, naturally the superstructure is essentially unsound. Here are some specific claims:

"The Citrophan treatment has the endorsement of chemists, physicians, professors of leading universities and medical colleges. . . ."

"With only three little Citrophan tablets daily, you may lose 10, 20 and even 30 pounds a month. . . ."

"This wonderful discovery called Citrophan is the result of world-wide study of the perplexing problem of obesity. It is not the work of a day or a month, but of years of research and practical experiment."

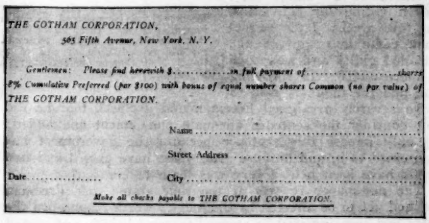
"Users of Citrophan often lose several pounds of flesh a week, and sometimes as much as a pound or more a day."

"This wonderful product has been endorsed by medical authorities and the leading chemists of America as absolutely harmless and phenomenally effective."

"Just as modeling-clay is moulded into beautiful form beneath the deft fingers of a sculptor's hand, so will burdensome fat melt away under the gentle action of Citrophan—*revealing the Venus underneath your fat.*"

The statement that the "Citrophan treatment has the endorsement of . . . professors of leading universities and medical colleges" is without a word of truth. The chemists and physicians who are said to endorse it are, presumably, of the type of Bendiner and Schlesinger, "patent medicine" exploiters, and Rubin and Whitmore of the Gotham concern.

Those who are on the "sucker list" of the Gotham Corporation first receive a form letter signed "H. H. Rubin, M.D., Medical Director." It is in this letter that Rubin brags of his "extended [*sic!*] practice" and his "broad experience." Accompanying it are two order blanks, one for forty-two Citrophan tablets, for which $4.00 is asked, and the other for one hundred and sixty-eight Citrophan tablets, price $12.50. Those who order receive a small package containing the Citrophan tablets and also a small batch of laxative tablets called "Fangerine." The instructions are, take two Citrophan tablets three times a day and one or two Fangerine tablets each night. As is the case with all "obesity cure" nostrums,


THE GOTHAM CORPORATION,
505 Fifth Avenue, New York, N. Y.

Gentlemen: Please find herewith $..... in full payment of ..... shares 8% Cumulative Preferred (par $100) with bonus of equal number shares Common (no par value) of THE GOTHAM CORPORATION.

Name .....

Street Address .....

Date ..... City .....

Make all checks payable to THE GOTHAM CORPORATION.

Photographic reproduction, reduced, of some of the matter used in the stock selling scheme of Citrophan. Sign on the dotted line.

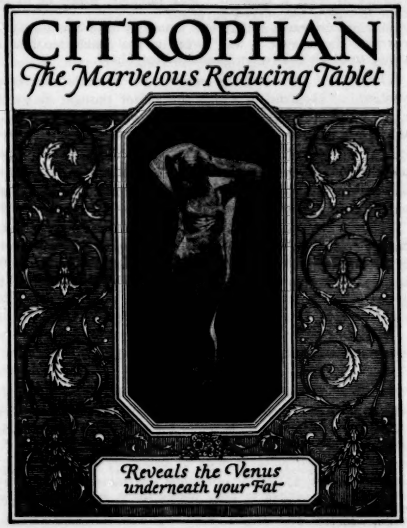
the purchaser is told (after she has spent her money) that, to get good results, it is necessary to "avoid eating foods made of white flour as well as sweets"; also one must not eat potatoes or bananas.

Orders for the Citrophan treatment were sent in from different localities and as the packages were received they were turned over to the A. M. A. Chemical Laboratory for analysis. The laboratory report follows:

LABORATORY REPORT

Citrophan.—This product is sold in the form of brown tablets in tubes. Each tube contains 21 tablets. The tablets in some of the packages had a noticeable odor like oil of peppermint. Others did not have this odor. The average weight of the tablets in different packages varied from about 4½ grains (0.3040 gm.) to more than 7 grains (0.4592 gm.).

Qualitative tests indicated the absence of alkaloids, free iodin, water-soluble iodids, benzoates, salicylates, and the purgative salts, such as magnesium sulphate and potassium sodium tartrate. Neither could tetraiodopyrrol (iodol), a substance which has been employed in another alleged obesity cure be found. The chief medicinal constituent of the tablets appeared to be tetraiodophenolphthalein. Sugar of milk (lactose) also was present in considerable quantities. Smaller amounts of starch, vegetable tissue and traces of an acid-insoluble substance (probably talc) were found. Traces of



Photographic reproduction, reduced, of the cover of one of the booklets sent out by the Citrophan concern in exploiting this obesity cure.

iron and phosphates were found in the ash. By shaking some of the powdered tablets with petroleum benzin, about 2 per cent. of an organic substance was removed which was not identified. It seems probable that this substance, together with the starch, talc and vegetable tissue is used merely as a binder to hold the tablets together.

From the results of the quantitative examination it is concluded that the composition of Citrophan is essentially as follows:

Tetraiodophenolphthalein	40 per cent.
Lactose (sugar of milk)	52 per cent.
Ash (including talc)	3 per cent.
Starch and undetermined	5 per cent.

About twenty-five years ago tetraiodophenolphthalein, the chief medicinal ingredient of Citrophan, was exploited in Europe under the name "Nosophen" as an external and internal antiseptic and substitute for iodoform. The product, while on the American market has never attracted much attention in this country.

In circulars advocating the use of Citrophan, which are distributed by the Gotham Corporation, the statement is made that Citrophan contains a recently discovered organic iodin compound derived from bone-oil which is stated to be insoluble in an acid or an alkaline medium or in alcohol. As a matter of fact, tetraiodophenolphthalein has been known for about thirty years and is soluble in alcohol and in alkaline solutions.

Fangerine.—This comes in the form of grey-brown tablets, each package containing eighteen tablets. The tablets have an odor like chocolate and a sweet, chocolate-like taste. The weight of the tablets is about 0.9 gm. each, or nearly 14 grains. Qualitative tests indicate the presence of chocolate, sugar (sucrose) and phenolphthalein. No other medicinal substances were found. Quantitative determinations indicated that Fangerine contained about 50 per cent. of sugar and about 11 per cent. of phenolphthalein or about 1.5 grains of phenolphthalein in each tablet.

Evidently, therefore, "Citrophan," instead of being a wonderful new discovery, is a resurrection, under another name, of a drug that has been used for a third of a century—tetraiodophenolphthalein, also sold under the proprietary name "Nosophen." At this point, it is worth calling to mind the fact that Edwin F. Bowers a little more than a year ago was connected with another piece of "obesity cure" mail-order quackery, "Neutroids," said to be the discovery of one R. Lincoln Graham of New York City. Analysis showed that "Neutroids" was also a resurrection, the stuff being, in fact, tetraiodopyrrol, or iodol.

Summed up, then, the case against Citrophan is: (1) There is no scientific evidence of the basic claim made relative to the cause of obesity nor to show that tetraiodophenolphthalein will reduce weight except, possibly, by disturbing the digestive functions; (2) the main props in the exploitation of this nostrum are Edwin F. Bowers and Albert Freeman; (3) Citrophan is marketed by methods common to mail-order quackery: alleged "scientific reports" from advertising men such as Bowers, an "analysis" from a "patent medicine" concern, testimonials both of the unsigned variety and from such persons as Susanna Cocroft, Herman H. Rubin and Benjamin T. Whitmore; (4) advertisements, both in a frank display form and also in the form of "original articles" appearing in commercially owned medical journals, and (5) a stock-selling scheme adjunct of the typical get-rich-quick variety.

Such is the superstructure on which this the latest mail-order "obesity cure" is offered to the public and the medical profession.

Correspondence

DENGUE

To the Editor:—In the editorial on dengue (THE JOURNAL, January 26, p. 306), mention is made of Graham in connection with the disease, minus his first name; and there are many Grahams in medicine. It is also stated that "it is only a few years since dengue was believed to be spread by air, etc.," while it has been really twenty-three years since Graham "broke ground" referable to dengue. His full name was Harry Graham; he graduated from Michigan University in 1885 and was professor of medicine in the American University of Beirut, Syria, until February, 1922, when he died from epidemic encephalitis. I succeeded him as director of internal medicine. From among the débris of his old office I rescued his original manuscript on "The Dengue," a copy of which lies before me. The date and place of it is "early July, 1901, in Beirut and outlying villages of Syria, during an epidemic." (Steven's text, 1923, p. 285, cites: Graham: *J. Trop. Med.* **5**:209, 1903.)

I thought it possible that the students of "fevers" might be interested in just how this man, handicapped by "the largest medical practice in the Orient," the teachings of internal medicine and allied subjects, in that out of the way corner of the world, carried out his studies which proved the mosquito *Culex fatigans* to be a carrier of dengue. He says:

At the beginning of the epidemic I commenced a series of experiments in order to determine, if possible, whether *Culex fatigans*, which exists in perfect swarms in the city, could carry dengue from person to person. The first experiment was done with a mother and her nursing child. The day after the mother was taken with the initial chill, all the

mosquitoes in the room which she inhabited were killed by generating chlorin gas; as she changed from one room to the other, a certain amount of gas was generated in the room she quitted, so that mosquitoes were kept away from her. The child, which was 8 months old, was allowed to nurse from her during the whole course of the fever. . . . The child escaped.

In Experiment 2, four children occupied the same room as a sleeping room; this and the adjoining room, which was used as a nursery, were freed from mosquitoes by generating chlorin gas, the day the youngest child, 4 years old, was taken ill. The eldest child was 11 years old, and free intercourse was kept up all day long among them. All four slept in the same bed, yet none of the other three contracted the disease.

In Experiment 3, the father of three children brought the disease to the house; he was anxious to keep his wife and children from the illness, and submitted to the annoyance of a daily disinfection of either one side or the other of his house in order to keep from mosquitoes. None of the other members of the household were attacked.

In all these cases, chlorin gas was generated every day in the house ten days after the fever ceased. Several other experiments of the same kind were done, and in each case when the directions were carefully carried out the result was the same: the dengue did not seem to be contagious when the mosquitoes were carefully and constantly kept out of the house.

At the same time I was carrying on another series of experiments to determine directly the possibility of the mosquito inoculating the same individuals with the blood drawn from those diseased. As dengue is a disease not dangerous to life and not accompanied by serious complications or followed by grave sequelae, I believe these experiments to have been justifiable. It has been a very easy matter, for a sum of five dollars each, to get any number of strong young men willing to run the chance of being sick a week with dengue.

In the city of Beirut, four different times I made the attempt to carry the disease by means of *Culex*. In each case the mosquitoes were taken from the sick man's netting and put inside the netting, where the candidate for the disease slept and kept there until he was taken ill. Patient 1 was taken with the initial chill five days after the mosquitoes were put in. Patient 2, six days after. Patient 3, four days after; but the fourth man slept for eight days with the mosquitoes under the netting without getting ill. I again put in a larger number, which I left in his netting a week, but without avail. He said that in the epidemic of 1889 he had had a very severe attack lasting six days, accompanied by high fever and an eruption.

In all of these experiments I selected houses in which as yet no cases had occurred, and the men kept to their rooms; during the day, at least, they visited no other houses so as not to run the chance of contracting the dengue in some other way. Yet in a city where the disease was so prevalent, it might with justice be argued that the disease has been contracted in some other way. In order to avoid this objection, the mosquitoes taken from a dengue patient were put in a pasteboard box, and I carried them to the mountains after first taking a bath and changing my clothing.

The village of Suk el Gharb is one of the wealthiest in the mountains, and has an elevation of 2,200 feet. Up to the time I carried the mosquitoes there, there was no case of dengue. The mosquitoes were introduced under the netting of two young men, both in good health, residing in different parts of the village, who said they never had the dengue, on the evening of September 15. On the 20th one was taken with a chill in the morning, and toward evening of the 21st the other. Both cases ran through the typical course of an attack of dengue. I have not been able to learn of any other cases in the village during the epidemic, although the village of Alay, which is only fifteen minutes' distance, on about the same level, has had a number of cases. Alay is a much larger village, it is dirtier, and it has more mosquitoes. Bhamdoon is about 4,000 feet up, and a few cases occurred there among people who had contracted it from those who had brought it up from Beirut. All of these villages have a certain number of mosquitoes, and in a season sufficiently warm there is undoubtedly a possibility of its being carried by the mosquito from an imported case to others who have not left the village. But the mosquitoes are not sufficient in number, especially where mosquito nettings are used, to spread the disease to any great extent. The latter experiments seem, to my mind, to prove beyond a doubt that *Culex* may be the means of carrying the dengue from one person to another. And the first experiments prove that, failing these, the dengue is not propagated to any extent. In the year 1889 I spent one night in the city of Beirut when the epidemic was prevailing, and then went up into the Lebanon mountains to an elevation of 5,000 feet among the pine trees where there were no mosquitoes, where twelve officers were living in a cabin. The sixth night from the one I spent in Beirut, I was taken with a very severe attack of dengue. The fever lasted six days, and terminated when a bright red macular eruption broke out all over my body. This was followed by desquamation, and yet none of the other eleven in the cabin were attacked, although no measures to prevent extension of the disease to others were taken.

The experiments which were done and prevented others in the family from getting the dengue by killing the mosquitoes in the house, and the others by which the disease was carried directly by this pest, seems to my mind to show beyond a doubt that the mosquito is the means by which the dengue is carried from one individual to another, and that in this country at least is done by *Culex fatigans*, which up to this time has been considered harmless.

Having determined that the mosquito was the means of carrying the disease, I was forced to the conclusion that its cause must therefore be sought in the blood.

The rest of the article is omitted, for it deals with blood studies in 153 cases, in which the author thought he recognized the "plasmodium." It was such a sore disappointment to him to have his blood "plasmodium findings" disproved that he counted all his work on dengue as naught. His assistant, George Ardati, however, during his summers in Germany aided the world in recognizing the part Harry Graham played with dengue.

This is hardly the place for my comment on dengue, but I cannot refrain from remarking that in any modern textbook in which dengue is written up, if the reader supplies "influenza" for dengue the subject matter will not have to be greatly changed. JOHN W. SHUMAN, M.D., Los Angeles.

CHIROPRACTORS AND LIFE INSURANCE EXAMINATIONS

To the Editor:—One of the comparatively new chiropractic schools, the Peerless College of Chiropractic of Chicago, in its catalogue, has an article under the heading: "Chiropractic Recognized by Big Insurance Companies." It follows:

> One of the strongest and surest indications of the great forward strides made by Chiropractic within the past few years, lies in the fact it is now recognized by many leading Health and Accident Insurance Companies.
>
> It is significant that many of these large Insurance Companies have come to recognize that a competent Chiropractor is as fully qualified to treat those suffering from sickness or accidents, as is a regular physician.
>
> Among the Health and Accident Insurance Companies which now recognize Chiropractic to the extent of accepting the signatures in the payment of their claims, may be mentioned the following:

There follows a list of twenty-seven companies, most of which are in accident insurance work almost exclusively.

A questionnaire was sent to each company, sent both as a physician and as an associate medical director of a life insurance company. The following questions were asked:

1. What recognition do you give to chiropractors?
2. Do you permit them to fill out your sickness and accident blanks, accepting as the cause of illness or accident a misplaced vertebra?
3. Do you consider chiropractors capable of taking care of such conditions as pneumonia, typhoid fever or influenza?
4. Would you consider them capable of taking care of Pott's fracture, fracture of the skull, or other similar conditions?
5. Do you agree with their statement: "Insurance Companies have come to recognize that competent Chiropractors are as fully qualified to treat those suffering from sickness or accidents, as is a regular physician?"

Replies were received from nearly all of these companies. Two letters were returned with the notation on the envelop, "no such company." Out of all the replies received there was only one, a small company, which was at all favorable to chiropractic, and it was favorable only under certain conditions. The answer to Question 1 limits the conditions for which a chiropractor is permitted to fill out blanks; to Question 2, "yes," but asks for more specific information; to

Question 3, "no"; to Question 4, "no"; to Question 5, "yes" (so far as it comes within their scope of treatment).

None of these companies believe the chiropractor to be as capable of caring for accidents and cases of illness as the physician. Four or five of these companies do permit a chiropractor to fill out a claim blank for sickness or accident, but reserve the right to have an investigation by a medical man before adjusting the claim.

One of the larger companies says: "We would not take the statement of a chiropractor at this time for any serious disability without at least having an examination made by our physician or surgeon, to see that proper progress toward recovery was being made."

Several companies report their having had trouble in several cases in which the chiropractor gives a misplaced vertebra as the cause of sickness, and the insured made a claim for accident instead of sickness; these being cases in which only an accident policy was issued.

Two or three companies do permit the chiropractors under certain conditions to sign blanks for disability, although they practically always make thorough investigations to substantiate the claim before it is paid.

One of the great "brotherhoods" in the list of companies states most emphatically that it gives absolutely no consideration to the chiropractors in their sickness or accident cases, while the other "brotherhood" in the list states that it accepts the chiropractor's statement for proof of injury, but not in case of death or other afflictions of its members.

A large Eastern company has adopted a diplomatic method of handling the situation: "We accept their [chiropractors] reports in the cases of patients of theirs who are claimants for indemnity, whether accident or health; we, however, never base any action upon these reports, but always investigate through our own examiners."

Summing up all of the evidence contained in these reports we find that:

1. None of the companies interviewed believe that chiropractors are as capable of caring for their sick or injured as a physician or surgeon.

2. In those states in which chiropractors are licensed, they are occasionally permitted to sign a claim blank, but practically always the patient is seen by a regular medical examiner of the company before the case is adjusted.

3. In these reports, in no case was the chiropractor considered competent to treat serious injuries or illness cases.

In my capacity as one of the medical directors of a life insurance company insuring people in twenty states, I have had occasion to find out whether there were companies permitting chiropractors and osteopaths to make life insurance examinations. To date I have not found one instance in which a chiropractor has been permitted to examine applicants for insurance.

In a few cases called to my attention, an unusually well equipped osteopath has been permitted to make an examination when the services of a medical man were not available. I believe that these cases, however, are very rare, and are decidedly not encouraged.

HAROLD M. CAMP, M.D., Monmouth, Ill.

Cardiac Murmurs in Rheumatism.—In early cases of rheumatism in childhood a variety of murmurs are heard, systolic and diastolic, most common of course at the apex, but audible elsewhere in the chest as well as in the neck. In addition, there is often a rumbling or tingling sound, quite different from the ordinary murmurs, audible at or near the apex, which may continue during the whole cardiac cycle at the same intensity and character. Thrills are common at the apex and at the base of the neck; they may be systolic or diastolic or sometimes continuous.—J. M. Gill: *Guy's Hosp. Rep.* **73**:414 (Oct.) 1923.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DETECTION OF PARAPHENYLENDIAMIN

To the Editor:—Please give a method for the detection of (1) paraphenylendiamin and (2) quinone in cloth.

B. C. S., M.D., Decatur, Ill.

ANSWER.—1. If the cloth has been well mordanted and the dyeing process thoroughly completed so that the paraphenylendiamin has been completely converted into oxidized quinone derivatives, the detection of the dye is difficult, as the mordanted dye is a very insoluble substance. Fabrics so dyed are unlikely to cause dermatitis. If, however, the dye has not been thoroughly mordanted, or the excess of dye has not been completely removed by washing, its presence may usually be established by positive reactions given by some of the following tests:

A portion of the cloth is warmed with physiologic sodium chlorid solution, and note taken whether any color goes into the solution. The extract is decanted, a portion made slightly alkaline with sodium hydroxid solution, and hydrogen peroxid solution added. Note should be taken whether any color is produced or (if already colored) whether the color is intensified. Some of the alkaline extract-hydrogen peroxid mixture is placed on filter paper and allowed to dry spontaneously. The paper is dyed brown or black in the presence of paraphenylendiamin. A splinter of pine wood is dipped into the sodium chlorid extract and treated with diluted acetic acid. The splinter becomes bright red. A drop of ferric chlorid solution is added to about 3 c.c. of the sodium chlorid extract. A violet results. A drop of the sodium chlorid extract is placed on a white surface, and a drop of bromin solution is added. A bright green results, which changes to a dull violet. A portion of the dry cloth is immersed in melted, anhydrous wool fat for several hours. If not too firmly fixed, some of the color will be dissolved and the solvent colored from brown to black.

2. Uncombined quinone is not likely to be present in cloth. The cloth is extracted with ether, and the solvent allowed to evaporate spontaneously. The residue should be yellow, and, on heating, a characteristic, irritating odor is produced by quinone.

PAIN AFTER USE OF SULPHARSPHENAMIN—VENOUS HARDENING AFTER SOLUTION ARSPHENAMIN

To the Editor:—1. I have used sulpharsphenamin-Squibb intravenously, subcutaneously and intramuscularly, and in each instance have caused great after-pain to the patient, as well as swelling, and loss of function. I have been very careful as to technic in each instance. Do others experience this great drawback? 2. Can the venous hardening after injection of solution arsphenamin-Squibb be prevented? What is the cause of it? How long is it before the veins resume their previous state so that they can be used again for injection?

REGINALD VAN WORRT, M.D., Ravena, N. Y.

ANSWER.—1. Recent reports indicate that sulpharsphenamin occasionally gives rise to considerable pain when employed intramuscularly, although, generally speaking, its use is reported to be attended with very little discomfort. Sulpharsphenamin is not used intravenously, as a rule. The severe reaction described, if occurring regularly, would indicate some error in technic, or possibly some fault in the manufacture of the drug.

2. We do not know of any greater prevalence of thrombosis following the injection of solution arsphenamin than in the use of other products. The period that elapses before the veins again become available for intravenous injections is very variable, and in some instances they never become available.

TREATMENT OF PYELITIS

To the Editor:—Will you note whether there is something recent on treatment of what seems an uncomplicated, and not unduly severe case of pyelitis in a small girl? I have used hexamethylenetetramin up to 30 grains daily, all that I could get my patient to take in the dilution that seemed to me advisable in order to keep away from the irritating effects. This alternated each few days with citrate of soda or potassium, until the urine had become alkaline for a few days. I then rendered it acid and repeated the hexamethylenetetramin. I also used methylene blue for several days. The trouble recurs, as the pediatricians tell us,

but it does not get any better. Kindly put me in touch with a new idea. This case is not apparently syphilitic. There have been large numbers of *B. coli* and some *Micrococci tetrageni*.

M.D., Kansas.

ANSWER.—When such inflammatory condition continues, one of three conditions is responsible for this persistence. There is either (1) a physical condition rendering healing impossible, such as renal calculus or ureteral stricture; (2) an essentially chronic infection, such as tuberculosis, or (3) deficient tissue resistance. Roentgen-ray examination and pyelography are essential to discover or eliminate the presence of mechanical conditions. The urine should be examined for tubercle bacilli by means of guinea-pig inoculation. When these examinations have proved negative, pelvic lavage with 0.5 per cent. silver nitrate solution as described, for instance, by Kretschmer and Helmholz (THE JOURNAL, Nov. 13, 1920, p. 1303) is likely to expedite a cure by improving local conditions. General resistance should also be raised by liberal alimentation and optimal hygiene.

COLOR BLINDNESS

To the Editor:—A patient of mine who has been a railway engineer for about twelve years has been periodically examined for color blindness and has always been given an excellent rating. His last examination was about eighteen months ago, at which time his color perception was good. Three months ago his engine turned over, injuring him severely, and he is now totally color blind. In order to advise him, I should like to know whether similar cases have been reported, and what the prognosis is. He wants to know whether his color perception will return, before accepting a settlement from the railway company, and whether to look for another position, as color blindness incapacitates him for work as an engineer.

M. Q. EWING, M.D., Amory, Miss.

ANSWER.—From the lack of clinical details, it is impossible to give a definite answer in this case, as the causative factor of the color blindness here is not known. There are two major possibilities. In the first place, it may be a case of malingering, either conscious or subconscious, which could be substantiated by an otherwise normal visual field, normal vision, absence of visible ocular changes, and normal dark adaptation. The second possibility is that of a skull fracture with consequent optic atrophy, the patient having been examined at the stage at which color perception has just vanished and the visual field and optic nerve changes are not yet advanced sufficiently to cause subjective disturbances. If the latter is the case, color perception will not return, whereas if the first supposition holds, there should be a complete restoration of color vision.

"BANANA OIL" AS AN IRRITANT

To the Editor:—I have a patient who is using banana oil in painting. He believes that in using it as a spray it causes irritation of the bronchial tubes and trachea and also affects his heart. Can you tell me whether this is known to be injurious?

WELLS C. REID, M.D., Goodrich, Mich.

ANSWER.—"Banana oil" is essentially amyl acetate, although it may contain acetone and benzene. Numerous cases of poisoning from the use of this solvent are on record. The poisoning generally occurs in painters, engravers, embossers and others who use paints, enamels or lacquers suspended or dissolved in the solvent. One case of poisoning from the use of a cough medicine containing amyl acetate has been reported (Dead Shot Cough Remedy, THE JOURNAL, April 17, 1915, p. 1348). The symptoms of amyl acetate poisoning are suffocation, coughing, a feeling of fulness of the blood vessels of the head, palpitation, dizziness, nausea, temporary blindness and severe headache. In the lower animals, amyl acetate causes lowering of the blood pressure, slowing of the pulse, paralysis, coma and death.

DIFFICULTY IN INSPIRATION

To the Editor:—Please discuss the phenomena seen frequently in practice in which patients complain of an inability to breathe with satisfaction. They say that the breath goes only half-way down, though occasionally they get a long, full and satisfactory inspiration. The patient may be quite nervous and usually thinks the heart is much disordered and the cause of the complaint. The heart action in the cases observed is uniformly normal. Other organs function normally also. There is no flatulent indigestion or constipation apparent. What is the treatment? Please omit my name.

S. A., M.D., Kansas.

ANSWER.—The train of symptoms referred to does not appear to conform with any definite clinical condition. Occasionally a patient with exophthalmic goiter, a cardiac lesion or an early pulmonary tuberculosis may have occasional difficulty in breathing, as described above. In the absence of physical findings, it is of no significance.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 1. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

ALASKA: Juneau, March 4. Sec., Dr. Henry C. De Vighne, Juneau.

CONNECTICUT: Hartford, March 11-12. Sec., Reg. Bd., Dr. Robert Lee Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, March 11. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

CONNECTICUT: New Haven, March 11. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, April 8. Sec., Dr. Edgar P. Copeland, Washington.

HAWAII: Honolulu, April 14. Sec., Dr. Guy C. Milnor, 401 Beretania Street, Honolulu.

IDAHO: Boise, April 1. Director, Mr. Charles Laurenson, Boise.

ILLINOIS: Chicago, April 15-17. Supt. of Registration, Mr. V. C. Michels, Springfield.

MAINE: Portland, March 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MINNESOTA: Minneapolis, April 1-3. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MONTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

NEW MEXICO: Santa Fe, April 14-15. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, April 8-9. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

THE QUALIFICATION OF THE MEDICAL EDUCATOR

JOHN FUNKÉ, M.D.
ATLANTA, GA.

During the last twenty-five years, much improvement has been accomplished in medical education; most of this has occurred during the last twelve or thirteen years, and has been in the form of higher standards for entrance; of better facilities, especially laboratory; of consolidation, and of elimination of the poorer class of institutions. When one looks back through the twenty-five years and notes this improvement, can one also see improvement in the ability of the medical educator to impart knowledge? Has this kept pace with the others? Is the medical educator of today equal to the master of twenty-five years ago, or is he even less capable? Has as much energy been spent on increasing the efficiency of the medical teacher as on the other lines of improvement? In the selection of members of medical faculties, is as much thought given now to the ability to teach as was given to that phase prior to twenty-five years ago? Is not that particular feature of a man's ability sacrificed at the expense of the original thought he can set forth? In this selection is not the man measured rather by his production of literature than by his ability to impart knowledge?

The man who is capable of working out obscure problems and is also able to present medical knowledge in a simple and clear manner—who is able to educate in the true sense—is, of course, much sought for; but, unfortunately, the combination is not easily found. Considered solely from the student's side of the question, the ability to impart knowledge and the effort on the part of the teacher to learn during the term whether the student is grasping the subject would be of greater value than the ability to work out obscure problems.

Is the time ever coming when medical educators will be required first to study the science of education? That is probably in the very distant future. I feel that the man who has had training in the art of teaching will make a better medical educator than one who has not had such training,

though, of course, there will be exceptions. Many will probably take the view that it is unnecessary, since applicants for medical schools are well prepared and are able to grasp what is placed before them. No one would advocate a correspondence course in the preclinical years. For many a medical student who has finished a college course and who will make a good physician, the medical subjects are harder than anything he has yet attempted. Even though one assumes the attitude that the student who cannot make his grade must drop out and seek another profession, those who just manage to pass would probably make better physicians if they were to receive some individual attention, or if the subject were presented in such a manner as to stimulate them to greater activity or to excite in them greater eagerness for knowledge. This raises the question as to whether the class method should be abandoned, or should be replaced with some modification. If the matter were carefully sifted, medical educators would find that they are confronted with problems similar to teachers in high and normal schools, who in the majority of instances are inclined to find some plan to give the slow student a little help either individually or in a group of the class.

Supervision and inspection are factors that tend to elevate the qualification of the teachers in the elementary schools. These things are wholly wanting not only in medical schools but also in colleges and universities. Is supervision of medical education impracticable? Probably not. Is it not true that heads of departments are unfamiliar with the work of the majority of the students until after the examination? How many heads of departments know a great deal about the teaching ability of their staff?

Would it not be practicable for every medical school to have on the faculty a member who is a trained educator, whose duty it would be to supervise and suggest methods and means of improvement in the manner of teaching? The objection would be raised that such a member could not be familiar with all medical subjects and hence would not be capable of teaching them. In a sense, this is true; but in the general plans and methods such a member could do much good, provided he were an energetic, enthusiastic, prolific teacher. Such a member would in all probability encounter much working "against the grain," but he would be obliged to have a position of authority or solid support. This is a problem not only for medical schools but also for other professional schools, colleges and universities.

1314 Hurt Building.

Illinois January Examination

Mr. V. C. Michels, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, Jan. 9-11, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 46 candidates examined, 18 passed and 28 failed. Fifteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1921)	86.8
Chicago College of Medicine and Surgery		(1917)	79.2
Chicago Medical School		(1922)	75.5
Loyola University		(1922, 2)*	84.3, 88.1
Northwestern University		(1917)	82.2
Rush Medical College		(1922),† (1923, 2)	80.3, 81.3
University of Illinois		(1917)	83.8
State University of Iowa College of Med.		(1920) 82.3, (1921)	90.3
Johns Hopkins University		(1920)	85.4
Tufts College Medical School		(1921)	82.8
University of Oklahoma		(1920)	82.7
University of Toronto Faculty of Medicine		(1917)	79.2
University of Naples, Italy		(1921)‡	82.3
University of Odessa, Russia		(1916)‡	78.4

College	FAILED	Year Grad.	Number Failed
George Washington University		(1909)	1
Emory University		(1921)	1
Chicago Hospital College of Medicine		(1917)	1
Chicago Medical School		(1922)	1
Jenner Medical College		(1917)	1
Loyola University		(1913), (1916), (1922, 3)*	5
Reliance Medical College		(1911)‡	1
College of Physicians and Surgeons, Boston		(1913)	1
Kansas City College of Medicine and Surgery		(1919)	1
Kansas City Medical College		(1897)	1
St. Louis College of Physicians and Surgeons		(1908)	1
Meharry Med. Coll.		(1902), (1912), 1914), (1921, 2),	6
Marquette University		(1922)	1
McGill University		(1919)§	1
University of Berlin, Germany		(1916)‡	1
National University, Athens, Greece		(1914)‡	1
University of Budapest, Hungary		(1913)‡ (1920)‡	2
University of Naples, Italy		(1919)‡	1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Los Angeles		(1918)	California
College of Physicians and Surgeons, Chicago		(1909)	Michigan
Indiana University School of Medicine		(1921)	Indiana
Sioux City College of Medicine		(1906)	Iowa
Johns Hopkins University		(1914)	Wyoming
Tufts College Medical School		(1919)	Maine
National University of Arts and Sciences		(1918)	Missouri
St. Louis University School of Medicine		(1918)	Missouri
John A. Creighton Medical College		(1915)	Nebraska
University of Nebraska College of Medicine		(1920)	Nebraska
Columbia University		(1916)	Wisconsin
Meharry Medical College		(1910) Kentucky, (1915)	Texas
Marquette University		(1922)	Wisconsin
Milwaukee Medical College		(1905)	Wisconsin

* These candidates have finished their medical course, and will receive their M.D. degrees on completion of a year's internship.
† No grade given.
‡ Graduation not verified.
§ Official information states that this man is not a graduate of McGill University.

Kentucky June Examination

Dr. A. T. McCormack, secretary, Kentucky State Board of Health, reports the written examination held at Louisville, June 12-14, 1923. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Of the thirty-five candidates who were examined, 34 passed and one failed. Four candidates were granted reregistration licenses. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surg		(1917)	77
Indiana University School of Med		(1923)	83
University of Louisville		(1919) 86, (1923, 22) 70, 82, 84, 84, 85, 85, 86, 86, 86, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 89, 89	
St. Louis Coll. of Phys. and Surgs		(1923)	75
Eclectic Medical College, Cincinnati		(1923)	86
University of Cincinnati		(1923)	86
University of Oklahoma		(1922)	81
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1923)	83
Meharry Medical College		(1918) 71, (1923, 2)	76, 76
University of Virginia		(1923)	89

College	FAILED	Year Grad.	Per Cent.
Kansas City University of Phys. and Surgs		(1921)	68

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland		(1920)	Maryland
Medical College of Virginia		(1915)	Virginia

Michigan June Examination

Dr. Beverly D. Harison, secretary, Board of Registration in Medicine, reports the written examination held at Detroit, June 18-20, 1923. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Fifty-one candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University School of Medicine		(1922)	83.9
Rush Medical College		(1923, 2)*	80.2, 85.1
Johns Hopkins University Medical Dept.		(1917) 86.9, (1922)	83.3
Harvard University		(1922)	83.7
Detroit College of Medicine and Surgery		(1922, 3) 75.5, 79.8, 83.9, (1923) 83.9, (1923, 21)* 78.3, 78.8, 79.3, 80.4, 80.5, 80.5, 80.6, 81.2, 81.5, 81.5, 81.5, 82.1, 82.6, 83.1, 83.4, 83.9, 84.3, 84.5, 84.7, 84.7, 85.9	
McGill Univ. Fac. of Med.		(1904) 79.1, (1917) 79.3, (1919)	82.4
University of Toronto, Ont., Fac. of Med.		(1903) 81.4, (1909) (1920, 2) 81.8, 83.3, (1921) 85.7, (1922, 4) 81.6, 81.9, 82, 83.6, 86.3, (1923, 3) 81.5, 81.6, 82.7	82.2,
Western University Medical School		(1906)	81.7
University of Freiburg, Germany		(1920)†	80
National University of Athens, Greece		(1913)†	79.2
University of Palermo, Italy		(1921)†	75.2

* These candidates have finished their medical course and will receive their M.D. degrees on completion of a year's internship.
† Graduation not verified.

Book Notices

WORKMEN'S COMPENSATION ACTS IN THE UNITED STATES. The Medical Aspect. Research Report Number 61. Paper. Price, $3. Pp. 282. New York: National Industrial Conference Board, 1923.

The National Industrial Conference Board presents in this report an analytic study of the provisions of medical and surgical interest in the workmen's compensation laws in force in the United States. The report contains everything necessary for an adequate medical understanding of the matter, and through its citations of authorities the reader can easily extend his study if he so desires. Medicine clearly underlies the entire superstructure of our workmen's compensation laws, yet this report shows the general absence of physicians from the membership of the boards charged with their administration. There is evidence of careful preparation throughout the report; but, unfortunately, it reiterates the mistaken idea that workmen's compensation laws have imposed a new duty of some kind on the medical profession, that they determine what fees a physician may lawfully charge an injured workman, and that the injured workman cannot be held liable for fees in excess of the supposed statutory limits, no matter what the value of the physician's services may be. Probably, in some localities, physicians have through unfortunate acquiescence in this too prevalent misconception allowed a condition to grow up by reason of which nothing short of an express contract would legally bind a workman for an amount greater than the workmen's compensation boards thought proper. But the workman himself would probably be the first to deny that these laws abridge his right to contract for medical service. And that such laws compel a physician to render a certain amount and kind of service for a stated fee, probably no one acquainted with the facts would claim; certainly any such construction would be repugnant to the intent of all workmen's compensation laws, to transfer supposedly unavoidable losses incident to business from the producer and distributor to the community at large—not to the medical profession. The report makes clear the need for uniformity not only in the express terms of the workmen's compensation laws of the United States, but also in their administration and interpretation. When such uniformity is established, the medical profession should have a place in the administrative organization commensurate with the importance of the medical and surgical factors on which sound administration must be based. The publication of this analysis of the medical phases of such laws should aid the profession in its endeavor to bring about that end. For this reason, and because of the convenient and clear insight into the present conditions afforded by this report, the National Industrial Conference Board is entitled to the thanks of the medical professional for its publication.

PALEOPATHOLOGY. An Introduction to the Study of Ancient Evidences of Disease. By Roy L. Moodie, Ph.D., Associate Professor of Anatomy in the University of Illinois. Cloth. Pp. 567, with 166 illustrations. Urbana: University of Illinois Press, 1923.

The author has spent many years in collecting and studying all the existing evidence that bears on the antiquity of disease. This has now been brought together in an imposing volume, with illustrations that present the objective evidence in a form that insures its perpetual value. The entire history of the world, as far as it is now known, has been combed for traces of disease, beginning with the presence of bacteria demonstrated in the oldest fossil-bearing rocks of North America, pre-Cambrian limestones of Montana, and carrying through to the diseases of the pre-Columbian inhabitants of America. Not long ago, scientists welcomed the appearance of the pioneer volume on paleopathology, in which the late Sir Marc Armand Ruffer reported chiefly his own observations on the pathology of early Egyptian remains. The present contribution is a much more extensive and systematic presentation, for Ruffer's volume appeared as a posthumous publication, his death during the war having prevented his carrying out the plan of a comprehensive work on paleontology. Moodie has now achieved this difficult task, and his volume constitutes a landmark in the history of the literature of medicine, anthropology and paleontology. It will for many years constitute an invaluable source of information concerning the problems of ancient disease conditions, a reliable starting point for all further investigations, and a source for comparison with all new discoveries in this developing field. Especially to be commended is the caution of the author in interpreting the nature of lesions found in fossilized remains. He recognizes fully the danger of deception by artefacts and the limitations of the knowledge of early disease that may be afforded by bones alone, yet appreciates also that to fail to present unproved materials for what they are is an almost equally great error in so young and undeveloped a subject. Not only fossils but also prehistoric art and the customs of primitive people are drawn on to furnish evidence of early disease, and the whole book is nothing less than fascinating to a medical reader. He learns, among many other things, that chronic arthritis has crippled not only man but other vertebrates throughout the ages; that even our cave dwelling ancestors had tuberculosis of the spine, several thousands of years before Percival Pott's name was attached to the disease, and that opisthotonos is often so striking in fossils as to suggest that they may have died of meningitis or from eating prehistoric plants of strychnin-like properties. The amount of work, thought and care evidently lavished by the author in the preparation of this documentation of a new branch of the science of old things should be well repaid by satisfaction with the product.

MANUEL DE L'ACCOUCHEUR. Par L. A. Demelin, Professeur en chef à la Maternité de Paris, et L. Devraigne, chef de service a la maternité de l'hôpital Lariboisière. Paper. Price, 68 francs. Pp. 1515, with 465 illustrations. Paris: Gaston Doin, 1924.

This obstetrician's manual unites with the manual of puericulture by the same authors to form a complete study of sexual life. The obstetric manual is written in simple language but with almost too great a leaning toward the distinctive French names of anatomic and physiologic elements. This is a departure from scientific ideals which is not peculiar to this book or even to French authors. The extensor muscle is an accurate technical appellation and so universally accepted that it seems superfluous for a German writer to use "streck muskel" in its place. Another fault common to both French and German writers is found in the bibliography, where the impression is given that there is but one God in science, and France (or Germany) alone is his prophet. Many nations have had sons who became famous in the development of obstetric art, but scarcely a dozen have been called to sit among the immortals in the present volume. Whether this is due to ignorance of other languages, to indifference for scientific attainment elsewhere, or to a partiality for associates of blood and tribe, is immaterial. The result is a belittlement of the art. What is yielded to patriotism is denied to science. Furthermore, the authors make every effort, and doubtless conscientiously, to secure French credit for maneuvers that have received other recognition. Thus, priority for the ring of Bandl is claimed for Baudelocque, while Frankenhäuser's plexus is ascribed to Lee. It happens not infrequently that scientific methods or phenomena are discovered or observed by different men at almost the same time; but Crousat wrote in 1882 and Walcher in 1891, so that there is some plausibility in the contention of our authors that the present-day distinction for Walcher's position should go to his French competitor, although the maneuver is really of Italian origin and was pictured in Scipio Mercurio in 1621 (following Curatello in 1580) and was adequately described by Nelli a hundred years later.

The authors have devoted the second part of the book to the complications of pregnancy, labor and the puerperium, together with the various methods of aid and intervention. The study of the disturbances produced by accident or intercurrent affections during the course of pregnancy and its sequelae takes up 500 pages of the text, but not so fully nor yet so satisfactorily as in Peter Muller's classic volume of approximately the same size. We note that veratrum viride is given high place among the remedies for eclampsia, while, in the early stages of this disease, bloodletting is regarded as almost infallible. Insulin is not mentioned in connection with diabetes, and the use of corpus luteum in pernicious vomiting is apparently a French invention. Among the

causes for the onset of labor, stress is placed on such doubtful influences as excess of carbon dioxid, the accumulation of fetal waste in the blood, fetal maturity and placental degeneration, while no reference is made to reactions from local pressures or distentions, or to the powerful officiousness of the sympathetic system. Mensuration of the fetus in utero is nowhere referred to, and the valuable contributions of Ahlfeld and Perret are unnoticed. The proportions are not always observed with discrimination, as in the case of cesarean section, which is discussed in thirteen pages, while the mutilating operations get thirty, although the indications for the latter are probably no more common in France than in this country or in England. The press work leaves much to be desired. Many of the pages are disfigured by blurred type and blurred pictures, and in the copy reviewed two entire chapters have been duplicated, so that the pagination from 627 to 742 is chaotic. The proof reading also shows many slips.

It is easy to find fault, but it is not always easy to assemble so large an amount of material in a wholly praiseworthy manner. There is much to commend. The use of rubber gloves is insisted on, and asepsis is everywhere given its prescriptive importance. The parts devoted to embryology, physiology and anatomy are adequately and agreeably presented. We miss the concise style of the great Varnier and his elaborate illustrations, but, on the whole, the authors have issued a judicious and comprehensive treatise on the modern practice of obstetrics.

DISEASES OF THE SKIN. By Frank Crozer Knowles, M.D., Professor of Dermatology, Jefferson Medical College. Second edition. Cloth. Price, $6.50. Pp. 595, with 243 illustrations. Philadelphia: Lea & Febiger, 1923.

The preparation of a book covering a special field in medicine, and intended for the use of students and practitioners, is not easy. Because the audience to which it appeals is familiar in only a general way with the subject discussed, and because it wants its information to be accurate, essential and quickly furnished, such a book must be brief, yet comprehensive; it must show a correct appreciation of the important and the unimportant; its printed illustrations must be numerous and of excellent quality; and, in its presentation of facts, nothing vital must be omitted; nothing must be left to be assumed; there must be no ambiguity of meaning, and clearness and conciseness of language must always prevail. Getting together such a students' handbook requires of an author even greater skill than the compiling of an elaborate treatise. This book meets these requirements partly, but not wholly. It is both brief and comprehensive, for the general scope of dermatology is fairly well covered in a handy volume. There is good judgment shown in the relative importance assigned to the diseases in their discussion. The illustrations are numerous, well chosen, and of good quality. The facts presented are comprehensive but often not clearly stated; one finds omissions which leave far too much that is vitally important to be taken for granted or to be guessed at by the student. Ambiguities are frequent, and in many places the language of the text does not meet the requirements of a tolerable grammatical and rhetorical standard. This constitutes the greatest defect of the book. Without particularizing, it is no exaggeration to say that the red pencil of a high school teacher of English critically applied would make some of the pages blush. Probably the blame for this shortcoming should be distributed to include author, typists and proofreaders; but wherever the fault may lie, the book should have an erratum slip inserted after the title page correcting the most obvious errors.

ARCHITECTURAL DESIGNS FOR A SMALL HOSPITAL. A Selection From the Designs Submitted in a Contest Conducted by The Modern Hospital for Plans of a Thirty to Forty Bed Hospital—Including Designs Receiving Prizes and Honorable Mention—with Critical Comments of the Plans and with Special Reports on the Organization and Equipment of the First Prize Hospital. Paper. Price, $1. Pp. 104, with illustrations. Chicago: The Modern Hospital Publishing Company, Inc., 1923.

This small volume contains the prize-winning designs for plans for a thirty to forty bed hospital in a contest conducted by the *Modern Hospital*. There has also been included fifteen other designs submitted in the contest, and each one is accompanied by critical and commendatory comments. There is a report of the jury of award and suggestions regarding the organization and equipment of the first prize hospital. All of this material is a reprint from the May, June, July, August and September, 1923, issues of the *Modern Hospital*, and in its present form will be convenient and very useful for those planning and organizing small hospitals.

LEHRBUCH DER MAGEN- UND DARMKRANKHEITEN. Von Privatdozenten Dr. Walter Zweig, Abteilungsvorstand am Kaiser Franz Josef-Ambulatorium in Wien. Third edition. Paper. Price, 18 marks. Pp. 591, with 81 illustrations. Berlin: Urban & Schwarzenberg, 1923.

The third edition of Dr. Zweigs' treatise on diseases of the stomach and intestines contains, as new features, the recasting of the article on methods of examination and treatment, and a rewriting of the chapters on ulcer, and putrefactive and fermentative diarrheas. The author takes a rational view of his subject, and describes it clearly and simply. Subjects like chronic gastritis, which is, after all, uncommon, and nervous dyspepsia seem to be accorded more space than their importance would warrant. This, however, is a question. The writer speaks of disinfection of the bowel with boric acid lavage and salicylic acid; the value of this proceedure will probably not receive much proof. It would be interesting to know just how frequently a dorsal pressure point in peptic ulcer occurs in the experience of American physicians, and compare it with the frequency in the experience of German authors; Zweig finds it fairly constantly in his observations. Vomiting of blood in 50 per cent. of all cases seems also high. One wonders whether ulcer is diagnosed frequently in the German clinics because of the great importance laid on the occurrence of either hematemesis or melena abroad, something that is not stressed so strongly in America. In fact, history and roentgenologic examination make for a greater number of diagnoses than other laboratory data; it is unfortunate that Dr. Zweig does not devote more space to roentgen-ray examination. Fractional gastric contents examination is not even mentioned. Treatment of ulcer is medical for superficial ulcers, Sippy treatment being an acceptable form, and surgery for penetrating lesions. It is encouraging to note that less importance is placed on ptosis as a cause of symptoms than formerly. The articles on colitis and constipation are complete. There is no running to fads. All in all, this book is well worth adding to one's library.

THE TOXAEMIA OF ACUTE INTESTINAL OBSTRUCTION OR VOMITING AS A PATHOLOGICAL FORCE. By R. H. Paramore, M.D., F.R.C.S., Hon. Surgeon and Gynaecologist, Hospital of St. Cross. Cloth. Price, 5 shillings net. Pp. 66. London: H. K. Lewis & Co., Ltd., 1923.

This monograph is based partly on experimental work done by Dr. Paramore on dogs and partly on a clinic and on experimental literature. Curiously enough, the author seems unaware of or at least does not discuss, the important work done in America on the toxemia of intestinal obstruction by Dr. L. R. Dragstedt and his co-workers. Dr. Paramore rejects the theory of Whipple that the toxemia of intestinal obstruction is due to absorption of the toxic proteose from the obstructed intestine. He says that "in intestinal obstruction the intoxication arises with the vomiting," and he considers that the vomiting and its sequelae in some way lead to the fatal ending. Dr. Dragstedt's work, on the other hand, seemed to show quite conclusively that the toxemia of acute intestinal obstruction is due to the production of bacterial toxins in the intestine, the vomiting and dehydration being secondary to the production and absorption of the bacterial toxins.

LES SYNDROMES RESPIRATOIRES. Par Émile Sergent, Professeur à la Faculté de médecine de Paris. Premier fascicule. Paper. Price, 20 francs. Pp. 301, with 11 illustrations. Paris: Gaston Doin, 1924.

This is a short discussion of the physiologic pathology of respiration. The author devotes thirty pages to malformations of the respiratory tract, the chest and the diaphragm, 117 pages to asthma, and the last three chapters to bronchitis, emphysema and dilatation of the bronchi. In each chapter the disease considered is dealt with under the headings of diagnosis, etiology and treatment. There are scant references to the literature and there is no index.

Medicolegal

Opinions as to Mental Condition—From Handwriting

(Adams et al. v. Adams (Texas), 253 S. W. R. 605)

The Court of Civil Appeals of Texas says, in this case, wherein an application to have a will admitted to probate was contested, that the trial court committed error in excluding, on the ground that it called for "a legal conclusion," a hypothetic question wherein a physician who had qualified as an expert was asked to state whether or not, in his opinion, the testator had sufficient intelligence of mind at the time he made the will to understand the object of his bounty. On a will contest, experts and other witnesses on their personal acquaintance, association with, observation of, and knowledge of the testator's condition, physically and mentally, may express their opinion as to his sanity, his susceptibility to the influence of others, and other conclusions as to his mental condition drawn from their actual observation, but they cannot give to the jury their opinion as to the legal effect of the condition of the testator as reflected by the evidence.

The evidence in this case showed a marked deterioration in the handwriting of the testator during the last few years of his life. The trial court erred in excluding the physician's opinion as an expert to the effect that this circumstance was an indication of senile dementia. On hearings of this character experts should be permitted to express their expert opinions on all facts and circumstances in evidence which, in their opinion as experts, reflect the mental condition of the testator.

But the trial court did not err in refusing to permit a judge to testify that in his opinion the testator, at the time he executed the will, was suffering with senile dementia. The court correctly permitted him to express an opinion as to the sanity of the testator, based on his experience with and knowledge of him; but, as the witness was not an expert on mental disease, he was not qualified to express an expert opinion on the particular malady with which the testator was suffering.

Chiropractic, "Disease" and "Diagnosis"

(People v. Willis (Calif.), 217 Pac. R. 771)

The District Court of Appeal of California, Third District, in affirming a judgment of conviction of the defendant, says that he was charged with practicing a system and mode of treating the sick and afflicted without having a valid unrevoked certificate of license from the board of medical examiners. The general trend of his contention was indicated by the statements in his brief that:

> The science of chiropractic is separate and distinct from the science of medicine and surgery and from all other known forms of what is generally termed "drugless practice." The particular difference consists in two things: First, excepting the science of chiropractic, each and every other science having to do with improvements or benefits to the human body bases its effects on an attempt to heal the body or to cure the body, and may therefore be generally referred to as a therapeutical science, as contradistinguished from the science of chiropractic, which makes no claim to being a science or art of healing the body or treating the diseases of the body. . . . In the second place, . . . chiropractic does not recognize disease as an entity, and consequently it cannot treat diseases, nor men nor women for diseases. Chiropractic only aims to establish and maintain the normal function of the tissues of the body by permitting a normal transmission of nerve energy to take place between the nerve centers and the general tissues of the body.

Of course, it matters not whether the chiropractor recognizes the existence of "disease," as that term is generally used, or what nomenclature he adopts to designate such condition of discomfort. The statute contemplates a departure from a state of health or what the defendant was pleased to term "a defective functioning of some organ of the body, or to a morbid condition affecting certain tissues of the body, after this defective functioning or morbidity has existed a sufficient length of time to indicate its presence in the body by symptoms." Common folk generally prefer the simpler term employed by the statute, but if the defendant and the followers of his system of practice favor a more euphonious designation, the law will not deny them that privilege. The law, however, does not permit the practice of the "healing art" without a suitable license, no matter what peculiar views of the nature of physical ailments may be entertained by the practitioner. The defendant's defense was no more reasonable than would be that of a man charged with murder who should claim that he could not commit the offense because he did not believe that there was such a thing in existence as a "human being."

The contention that he could not be legally convicted because in his practice he did not "diagnose" human ailments seems to the court equally specious and fanciful. Indeed, it is difficult to conceive of one trying to restore to a normal condition a person who is abnormal without a prior investigation and determination, in a general way at least, of the character of the abnormality. Manifestly, there are no fixed limits to a diagnosis. It may not amount to a scientific classification of the ailment; it may go no further than an observation of the most obtrusive symptoms, and may be accurate or inaccurate, and yet be within the contemplation of the statute. Moreover, if it may be said that there may be treatment without diagnosis, then the defendant is equally guilty, because the statute enumerates various acts which separately or together constitute an offense. One of these is to "practice or attempt to practice any system or mode of treating the sick or afflicted . . . without having at the time of so doing a valid unrevoked certificate as provided in this act." If he does this either with or without a diagnosis, he is chargeable with the offense.

"Sound Mind" for Purpose of Making a Will

(Petterson v. Imbsen et al. (S. D.), 194 N. W. R. 842)

The Supreme Court of South Dakota, in reversing a judgment that was rendered in favor of the contestant of a will, says that no doubt the testatrix at the time of the execution of the will was suffering from great bodily weakness. Her hearing was defective and her mental vigor impaired, but it could not be said that she did not thoroughly comprehend the disposition she was making of her property. The law requires soundness of mind, but by this is not necessarily meant that degree of intellectual vigor which one has in youth or that is usually enjoyed by one in perfect health. It is not necessary that one should have sufficient capacity to make contracts and do business generally or to engage in complex and intricate business matters; but, for the purpose of making a will, one has a sound mind who, without prompting, has full and intelligent knowledge of the act engaged in, and full knowledge of the property he possesses, and is capable of comprehending its condition, and intelligent perception and understanding of the disposition he wishes to make of it and of the persons that he desires shall be recipients of his bounty and gifts, and to recollect and apprehend the nature of the claims of those who are excluded from participating in his bounty.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 15-18. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, Buffalo, N. Y., April 16-19. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American Surgical Association, Baltimore, April 17-19. Dr. Robert B. Greenough, 8 Marlborough Street, Boston, Secretary.

Louisiana State Medical Society, Opelousas, April 21-24. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 22-24. Dr. J. A. Chatard, 1211 Cathedral St., Baltimore, Secretary.

New York, Medical Society of the State of, Rochester, April 22. Dr. Edward L. Hunt, 17 West 43d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Raleigh, April 15-17. Dr. L. B. McBrayer, Sanatorium, Secretary.

South Carolina Medical Association, Orangeburg, April 15-17. Dr. Edgar A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Knoxville, April 8-10. Dr. J. F. Gallagher, Jackson Bldg., Nashville, Secretary.

Western Electro-Therapeutic Association, Kansas City, April 17-18. Dr. Charles Wood Fassett, 115 E. 31st Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

4: 1-75 (Jan.) 1924

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Cysticercus Tenuicollis. Incidence and Immunologic Reactions. T. D. Beckwith and W. E. Scott, Palo Alto, Calif.—p. 1.
Effect of Oil on Anopheles Mosquito Larva. H. W. Green, Cleveland.—p. 12.
*Studies on Paratyphoid-Enteritidis Group. VIII. Epidemic of Food Infection Due to Paratyphoid Bacillus of Rodent Origin. O. Salthe and C. Krumwiede, New York.—p. 23.
*Bacteriologic Examination of Ground Beef with Reference to Standard Analysis. I. Relation of Bacterial Count and Aerobic Species Present to Spoilage. R. E. Hoffstadt, Baltimore.—p. 33.
*Id. II. Anaerobic Species Present in Ground Beef and Their Relation to Spoilage. R. E. Hoffstadt, Baltimore.—p. 43.
*Child Mortality with Reference to Higher Education of Parents. W. G. Lennox, Boston.—p. 52.
Activation of Complement-Deficient Guinea-Pig Serum with Heated Serum. R. R. Hyde, Baltimore.—p. 62.
Complement Deficient Guinea-Pig Serum and Supersensitized Corpuscles. R. R. Hyde, Baltimore.—p. 65.

Food Infection Due to Paratyphoid Bacillus.—A food infection outbreak, comprising fifty-nine cases, is reported on by Salthe and Krumwiede. The cause of the outbreak was the contamination of the cream (corn-starch) filling of eclairs and crumb cake. The contamination was found to have been of rodent origin. The causative bacterium was a distinct paratyphoid type, *B. pestis-caviae* (*B. typhi-murium*—"mutton" type), prevalent in rodents; it has also been isolated from other species. This type, only recently separated with definiteness as a distinct and prevalent paratyphoid variety, is apparently one of the commonest etiologic agents of food infection in man.

Bacteriologic Examination of Ground Beef.—The results obtained by Hoffstadt in her investigation show that the total aerobic bacterial count or count of dextrose fermenters is unreliable as a standard for meat analysis. The presence of an aerobic form or group cannot be taken as an index to the freshness of the meat. There was no relation between initial counts and counts in subsequent spoliage of samples. There was no relation between the percentage of proteolytic aerobes and the type of spoliage.

Id.—Hoffstadt concludes that the presence of proteolytic anaerobes indicates a definite way by which the keeping qualities of meat can be predicted.

Child Mortality with Reference to Higher Education of Parents.—Statistics from a group of 939 families, reporting 2,475 pregnancies, are tabulated by Lennox with reference to the medical and general education of parents. Families in which the father is a doctor do not have lower mortality rates among children than the other professional or business groups. The small group of doctors engaged in a specialty show unusually high rates. Miscarriage rates for doctors' wives are high, probably because reports from other occupational groups are falsely low. College attendance of a parent or extended years of schooling is accompanied by slightly higher mortality rates of children. In case both parents have attended college or had extended schooling, there is a slightly lowered mortality rate. A disproportionate number of children whose parents have had less than a grammar school education have died of infectious diseases. The more highly educated parents report a higher proportion of living children who are in robust health.

American Journal of Medical Sciences, Philadelphia

167: 1-156 (Jan.) 1924

Table of contents:

*Significance of Glycosuria in Gallbladder and Duct Diseases. J. A. Lichty and J. O. Woods, Pittsburgh.—p. 1.
*Spleen and Digestion. IV. Spleen and Biliary Secretion; Reaction in Bile Pigment Secretion Following Splenectomy. W. DeP. Inlow, Rochester, Minn.—p. 10.
Blood Counts and Basal Metabolism of Leukemias Under Roentgen-Ray Treatment. K. R. McAlpin and B. J. Sanger, New York.—p. 29.
*Roentgen-Ray Therapy of Exophthalmic Goiter. G. M. Goodwin and W. B. Long, New York.—p. 38.
Sporotrichosis. H. R. Foerster, Milwaukee.—p. 54.
*Unusual Malignant Tumor of Pancreas. N. C. Foot, B. N. Carter and M. J. Flipse, Cincinnati.—p. 76.
*Torula Infection in Man. W. M. Sheppe, University, Va.—p. 91.
*Relation of Nonprotein Nitrogen of Blood to Parathyroid Tetany. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 108.
*Action of Intravenous Injections of Sodium Bicarbonate on Kidneys. E. Kellbert, Albany, N. Y.—p. 114.
*Palpation of Spleen. W. S. Middleton, Madison, Wis.—p. 118.

Significance of Glycosuria in Gallbladder Disease.—For the purpose of furnishing evidence of the probable direct relation of disease of the biliary tract to diabetes mellitus Lichty and Woods analyze twenty-five cases of glycosuria, collected from 23,464 cases. The diagnosis of gallbladder and duct disease was made 1,474 times; 431 were confirmed by operation or necropsy. In the same group the presence of glycosuria was noted 455 times; 373 were diagnosed as cases of true diabetes mellitus, and eighty-two as transient or renal diabetes, so-called. Of the twenty-five cases of glycosuria with biliary tract involvement, six were cases of true diabetes mellitus, and were proved at operation or necropsy to have a diseased biliary tract; eleven more were as truly diabetes mellitus, but none of these were operated on or came to necropsy. Hence, the diagnosis of biliary tract disease must be in doubt. However, on account of the history and course of the disease, the diagnosis of biliary tract was the only reasonable one. Of the six cases of true diabetes mellitus and verified biliary tract disease, three patients apparently recovered after operation.

Spleen and Biliary Secretion After Splenectomy.—Experimental data regarding the biliary secretion in four dogs, three of which were splenectomized, are offered by Inlow. The effects of splenectomy are: The amount of bile secreted when food is given is increased about one-fourth above the amount under similar conditions before splenectomy. The fluctuations in output of bile pigment are marked. However, the average amount of pigment secreted, when totaled over a sufficiently long period, remains the same. The hypothesis is proposed that the factor or factors responsible for the blood picture after splenectomy are responsible also for the reaction in the secretion of bile pigment after removal of the spleen; and if there is a cyclic mechanism in the elaboration of bile pigment, that the spleen in some manner exercises a regulatory influence in this phenomenon.

Roentgenotherapy of Exophthalmic Goiter.—Nine cases of toxic exophthalmic goiter were treated by Goodwin and Long with the roentgen ray. In five of these cases the results of treatment have been satisfactory so far. In two cases the toxemia seemed to increase in spite of prolonged treatment.

Malignant Tumor of Pancreas.—The primary growth in the case cited by Foot, Carter and Flipse was apparently in or near the head of the pancreas, with metastases to the hilum of the right lung, the pericardium, retroperitoneal and mesenteric lymph nodes, and to the cerebrum and cebellum by way of the choroid plexus. Three eminent pathologists believed it to be a neuro blastoma, and two pronounced it an atypical, extremely metaplastic carcinoma of the pancreas.

Torula Infection in Man.—Sheppe records in detail the characteristics of this rather unusual virus; describes the morbid anatomy and types of disease produced; and proposes a more definite and exact nomenclature for the fungus infections based on their botanical relationships.

Nonprotein Nitrogen in Blood After Parathyroidectomy.—Haden and Orr followed the level of the nonprotein constituents of the blood of the dog after complete removal of the thyroid and parathyroid. Four animals with complete parathyroidectomy developed tetany. One animal died on the eighth day without showing tetany. Two dogs with only the anterior parathyroids removed and one with complete parathyroidectomy, which did not develop tetany, showed no increase in total nonprotein nitrogen in the blood. The four animals showing tetany all showed an increase in urea nitrogen and undetermined nitrogen. The increase was demonstrable before the onset of tetany. The uric acid, amino-acid nitrogen, creatinin, sugar, chlorids and carbon dioxid combining power showed no constant change. These findings lend some support to the theory that tetany is a symptom due to some toxic body arising in the course of a disorder of protein metabolism.

Sodium Bicarbonate Intravenously Not Injurious to Kidneys.—No experimental evidence was obtained by Kellbert, in the case of rabbits, for the belief that intravenous injections of sodium bicarbonate, as used for therapeutic purposes, are injurious to the kidneys.

Palpation of Spleen.—A method for palpation of the spleen is described by Middleton in which the posteriorly placed flexed forearm of the patient supplants the examiner's hand in inducing anterior displacement of the lower ribs.

Atlantic Medical Journal, Harrisburg, Pa.

27: 193-262 (Jan.) 1924

Future of Pediatrics. J. C. Gittings, Philadelphia.—p. 193.
*Contraindications to Cholecystectomy. J. H. Gibbon, Philadelphia.—p. 196.
*Recurrent Cholelithiasis. H. R. Decker, Pittsburgh.—p. 198.
Poisons Sold by Grocers. C. Jackson, Philadelphia.—p. 208.
Ocular Manifestations from Traumatic Encysted Hemorrhage in Brain. E. J. Stein, Lancaster.—p. 211.
Vernal Conjunctivitis. W. C. Posey, Philadelphia.—p. 215.
*Diagnosis and Treatment of Chronic or Latent Tonsillitis. J. Daland, Philadelphia.—p. 219.
Mental Health Legislation. W. C. Sandy, Harrisburg, Pa.—p. 223.
*Case of Unusual Blood Tumor of Thigh. W. A. Dearth.—p. 225.
Case of Congenital Atresia of Ileum. W. A. Dearth.—p. 226.
Case of Hydronephrosis of Kidney with Common Pelvis. W. A. Dearth. —p. 228.

Contraindications to Cholecystectomy.—Gibbon believes that the removal of the gallbladder is preferable to drainage in the majority of cases, but that there are conditions and circumstances which render the simpler procedure the wiser and safer. Many cases call for the wisest judgment, based on a thorough knowledge of pathologic processes and their manifestations, before a decision is made in favor of either procedure. The decision must be based on the findings, the patient's condition, the risks and difficulties of the operation and the skill and experience of the operator. Cholecystectomy has become a much larger field but there is still a field for simple drainage.

Recurrent Cholelithiasis.—The end results of surgery of the biliary tract show that symptoms return and lead to a secondary operation in approximately 8 per cent. of cases. Decker reports one case of undoubted recurrence.

Treatment of Chronic Tonsillitis.—The treatment of chronic infection of the tonsils or of an infected remnant, Daland states, is complete surgical removal. When infected tonsils are inoperable, the septa of the crypts may be divided to favor drainage. Any antiseptic may be used to irrigate the crypts after they have been thoroughly emptied by compressed air or liquid. The roentgen ray properly applied, in proper doses, at proper intervals, sometimes reduces the size of diseased tonsils and may reduce infectivity, and should be employed in conjunction with local treatment. A properly made autogenous vaccine is of value in the senile, the debilitated, and those in whom resistance is low. In healthy young adults, with no complications, vaccines are usually unnecessary.

Hematoma of Thigh.—Dearth's patient noticed a lump about the size of a walnut, below the left iliac crest, twenty years ago. About three years ago it began to enlarge, and in the six months previous to admission grew rapidly. It had never caused pain, only a feeling of weight. The growth had a firm fibrous attachment to the great trochanter and along the entire crest of the ilium. The blood vessels supplying the tumor were small and few. On section, 3 liters of a chocolate colored fluid of the consistency of melted ice cream spurted out. There were several cavities the walls of which were thin. The weight of the tumor was 22½ pounds.

California State Journal of Medicine, San Francisco

22: 1-68 (Jan.) 1924

*Erythema Induratum. H. E. Alderson, San Francisco.—p. 1.
Treatment of Acute Osteomyelitis. A. J. Ochsner, Chicago.—p. 3.
Case of Simulated Pregnancy and Delivery. A. D. Ellsworth, Fresno. —p. 5.
Halle's Clinic: Endonasal Surgery. R. D. Cohn, San Francisco.—p. 6.
Present Day Roentgen Ray and Radium Therapy. C. E. Piersall, Reno. —p. 9.
Roentgen-Ray Therapy in Thyrotoxicosis; Its Effect as Measured by Basal Metabolic Rate. J. M. Read, San Francisco.—p. 10.
Meningitis of Otitic Origin. J. F. Friesen, Los Angeles.—p. 16.
Individuality and Environment as Etiologic Factors in Psychoneuroses. C. E. Nixon, San Francisco.—p. 17.
*Adult Equivalent of Froelich Syndrome. G. K. Abbott, Sanitarium, Calif.—p. 20.
Adenoma of Thyroid. E. H. Schneider, Los Angeles.—p. 22.
*Effects of Posture on Relaxation Under Anesthesia. C. B. Palmer, San Francisco.—p. 24.

Erythema Induratum.—A case of erythema induratum is reported by Alderson in which good results were obtained from treatment with tuberculin and ultraviolet light.

Adult Equivalent of Froelich Syndrome.—Five cases of a type of hypopituitarism in adults of subacute onset, which resembled the juvenile Froelich syndrome, are cited by Abbott. They appeared to be caused by such infections as influenza and measles. There is a rapid production of adiposity, scanty menstruation or amenorrhea, headaches, and lassitude. The headaches and lassitude are relieved by feeding whole pituitary, which must be repeated at intervals. These symptoms are not influenced by ovarian extracts. The adiposity and emenorrhea are only slightly influenced, if at all, by pituitary feeding. The same lack of effect follows the use of ovarian extracts.

Effect of Posture on Relaxation Under Anesthesia.—The observation of more than 10,000 cases led Palmer and others to believe that due attention to posture during the induction and maintenance of anesthesia makes induction easier and more rapid with greater relaxation. A less profound anesthesia is required. The patients are in better condition after operation and have much less postoperative discomfort.

Canadian Medical Association Journal, Montreal

14: 1-86 (Jan.) 1924

Physiology and Clinical Medicine. J. J. R. MacLeod, Toronto.—p. 2.
*Tuberculous Ulceration of Intestines. J. E. Pritchard, Ninette, Man. —p. 5.
Treatment of Intestinal Obstruction. W. Taylor, Dublin, Ireland.—p. 12.
Diagnosis of Abdominal Lesions. E. Archibald, Montreal.—p. 16.
Renal and Splenic Lesions as Factors in Upper Abdominal Disease. R. R. Graham, Toronto.—p. 20.
Renal and Splenic Lesions. R. A. McComb, Toronto.—p. 27.
Acute Abdomen. W. H. Irvine, Fredericton, N. B.—p. 29.
Formula for Expressing Balance in Diabetic Organism. R. E. Coleman, Vancouver, B. C.—p. 31.
Insulin for Diabetes in Children. G. L. Boyd, Toronto.—p. 33.
*Hematuria. D. W. MacKenzie:—p. 41.
*Two Cases of Infestation of Intestine with Larvae of Species of Fannia. A. G. Nicholls, Halifax, N. S.—p. 42.
*Alastrim in Antigua, B. W. I. H. W. Hill, London, Canada.—p. 44.
Id. E. W. R. Branch and W. M. McDonald.—p. 45.
Suction Apparatus for Removing Mucus from New-Born. G. J. Strean, Montreal.—p. 46.
Cartilage Cranioplasty. A. R. Munroe, Edmonton.—p. 47.
Direct Transfusion for Acute Phthisis Following Puerperium. A. J. Prentice, Toronto.—p. 50.

Tuberculous Ulceration of Intestine.—In forty-five patients reported by Pritchard, pulmonary lesions were present in all, and in thirty-nine, pulmonary symptoms preceded intestinal symptoms; in one there were no definite intestinal symptoms although the roentgen ray revealed a very marked filling defect; in the remaining five cases, the general breakdown was coincident apparently with the onset of intestinal symptoms. In every case general symptoms—loss of energy, or weight, or increase of nervous irritability—were manifest before the onset of local symptoms. Nervousness was an outstanding symptom in five cases and a fairly marked symptom in nineteen. Anorexia was complained of in thirty-two cases and was the first symptom in fifteen. Discomfort was complained of in thirty-three cases and was the first local symptom in seven cases. Definite pain was the most frequent symptom complained of in five cases. Pain is rarely absent in advanced cases. Flatulence was usually not observed until after two or three other symptoms became noticeable in twenty-six cases. Nausea was reported by nineteen patients, vomiting by ten. Constipation was complained of by nineteen patients and was the first symptom in thirteen. Diarrhea occurred in forty cases. Physical signs in the abdomen were comparatively slight. In forty-three cases definite filling defects were found, and one was doubtful. Hypermotility was demonstrated in twenty-eight cases. Tubercle bacilli were found in the stools in twenty cases, among which only two had sputum free from tubercle bacilli. Occult blood was found in thirty out of forty-two specimens of feces examined.

Cause of Hematuria.—In a review of 821 cases of hematuria occurring in 3,800 admissions, MacKenzie found that 192 were

due to calculi, 113 to tumors, 88 to renal tuberculosis, and 143 to surgical infections of the ureters and kidneys.

Intestinal Myiasis; Fannia Scalaris.—In the first of Nicholls' cases the larvae were identified as those of *Fannia scalaris*, otherwise known as the "latrine fly." In the second instance, two forms were found, the larva of *F. scalaris* and of *F. canalicularis*, or the "lesser house fly." The symptoms referrable to intestinal myiasis are often trivial, but there is usually abdominal distress or pain, abdominal distention and diarrhea. Exceptionally, the stools are bloody.

Alastrim Is Mild Smallpox.—Clinically, alastrim, amaas, Kaffir-pox, Cuban itch, Sanaga-pox, glasspox, milkpox and milk smallpox are indistinguishable; they are all prevented by vaccination and, hence (since vaccinia is smallpox, modified by the cow), show the essential biologic as well as practical test for etiologic identity with smallpox. Hill points out that every item of proof so far accumulated indicates that "alastrim" of the tropics is merely the mild smallpox of the temperate zone.

Indiana State Medical Association Journal, Ft. Wayne

17: 1-42 (Jan. 3) 1924

Function of Thyroid and Lowered Mortality Following Its Surgical Treatment. C. H. Mayo, Rochester, Minn.—p. 1.
Physical Examination of Infants and Children. J. L. Morse, Boston. —p. 3.
Epidemic Encephalitis; After Effects. W. A. Fankboner, Marion.—p. 9.
Etiology of Retinitis Proliferans. B. J. Larkin, Indianapolis.—p. 13.
Retinitis Proliferans. Report of Case. E. J. Lent and M. B. Lyon, South Bend.—p. 16.

Iowa State Medical Society Journal, Des Moines

14: 1-44 (Jan.) 1924

Therapeutic Fads. F. J. Rohner, Iowa City.—p. 1.
Routine Treatment of Acute Otorrhea, Especially in Children. O. Wolfe, Marshalltown.—p. 4.
Plastic Medicine. J. G. Macrea, Creston.—p. 9.
Diagnosis of Diseased Gallbladder. L. H. Fritz, Dubuque.—p. 12.
Trifacial Neuralgia. A. W. Adson, Rochester, Minn.—p. 17.
Surgical Judgment. J. H. Gibbon, Philadelphia.—p. 20.
Importance of Early Treatment of Chronic Nasal Catarrh or Chronic Inflammation of Nose Proper. J. K. Guthrie, New Hampton.—p. 23.

Johns Hopkins Hospital Bulletin, Baltimore

35: 1-32 (Jan.) 1924

Blood Volume in Pregnancy. H. J. Stander and A. N. Creadick, New Haven, Conn.—p. 1.
*Case of Malta Fever Originating in Baltimore. C. S. Keefer, Baltimore.—p. 6.
*Cure of Retroperitoneal and Perinephritic Infection (Abscess) by Intravenous Injection of Mercurochrome. H. H. Young, Baltimore.—p. 14.
*Chronic Arthritis in Adult, Associated with Splenomegaly and Leukopenia. Report of Five Cases. A. R. Felty, Baltimore.—p. 16.
Results of Injection of Encephalitic Spinal Fluid into Rabbits. F. R. Ford and H. L. Amoss, Baltimore.—p. 20.
*Blood Grouping. I. Antigenic Properties of Two Types of "Group II" Erythrocytes. J. G. Huck and C. G. Guthrie, Baltimore.—p. 23.
Xanthoma Diabeticorum. R. H. Major, Kansas City, Kan.—p. 27.

Malta Fever in Baltimore.—A case of Malta fever occurring sporadically in Baltimore is reported by Keefer. The organism isolated from this case has been shown to belong to the abortus group, of *Br. melitensis*, so that the origin of the infection seems to have been bovine and not caprine. This is the first recorded case of a disease in man corresponding to Malta fever due to an organism belonging to the abortus group. The relationship existing between the organism causing infectious abortion in cattle and the organism causing Malta fever in man is reviewed and discussed. The recent terminology of the Brucella and melitensis group of organisms is discussed.

Mercurochrome for Perinephritic Abscess.—The results which have been obtained with mercurochrome intravenously in septicemias prompted Young to use it in a case in which urethral and vesical instrumentation was followed by fever, gradually increasing pain and tenderness in the left side, which finally reached the region above the crest of the ilium and behind the left kidney. Injection of mercurochrome, 5 mg. per kilogram of body weight (23 c.c. of a 1 per cent. aqueous solution per 100 pounds), was successful. After a pronounced reaction, accompanied by chill and fever which reached 106 F. two hours later, there was a rapid subsidence of the temperature, which became normal in twelve hours. Pari passu, there was a rapid disappearance of pain, tenderness, and muscle spasm, and on the following day all signs of toxicity had practically disappeared, and the patient went on to a rapid and uneventful recovery.

Arthritis Associated with Splenomegaly and Leukopenia.—Five cases, strikingly similar in their essential features, are described by Felty, presenting an unusual but unmistakable clinical picture, characterized by arthritis, splenomegaly and leukopenia. The etiology is entirely obscure, though the various findings seem best accounted for as manifestations of a single disease process.

Agglutinin Differentiates Two Types of Group II Erythrocytes.—An agglutinin capable of differentiating the two types of "Group II" blood represented by the formulas A-b and A-bc has been demonstrated by Huck and Guthrie in the serums of rabbits after immunization. The bearing of these observations on transfusion in human beings is discussed.

Journal of Bacteriology, Baltimore

9: 1-94 (Jan.) 1924

*Decomposition Products of Spore Bearing Bacteria in Heated Milk. H. Lisk, Baltimore.—p. 1.
Morphologic, Cultural and Biochemical Study of Respresentative Spore Forming Anaerobic Bacteria. G. F. Reddish and L. F. Rettger, New Haven, Conn.—p. 13.
Correlation of Citrate Utilization by Members of Colon-Aerogenes Group with Other Differential Characteristics and with Habitat. S. A. Koser, Washington, D. C.—p. 59.
Character of Acids Produced by Hemolytic and Nonhemolytic Streptococci from Pathogenic Sources and From Milk. B. Langwill, Baltimore.—p. 79.

Aerobic Spore Bearing Bacteria in Milk.—The aerobic spore bearing bacteria isolated by Lisk from milk were: *Bacillus cereus; B. albolactus; B. mesentericus-vulgatus; B. mesentericus-fuscus; B. asteriporous; B. subtilis-viscosus; B. simplex; B. circulans; B. megatherium* and *B. brevis.*

Journal of Medical Research, Boston

44: 121-262 (Dec.) 1923

*Experimental Production of Herpetic Lesions in Organs and Tissues of Rabbit. E. W. Goodpasture and O. Teague, Pittsburgh.—p. 121.
*Transmission of Virus of Herpes Febrilis Along Nerves in Experimentally Infected Rabbits. E. W. Goodpasture and O. Teague, Pittsburgh.—p. 139.
*Experimental Herpes Zoster. O. Teague and E. W. Goodpasture, Pittsburgh.—p. 185.
*Method of Demonstrating Experimental Gross Lesions of Central Nervous System. R. H. McClellan and E. W. Goodpasture, Pittsburgh. —p. 203.
Repair of Liver Following Injection of Chloroform Into Portal System. E. W. Schultz, E. M. Hall and H. V. Baker, San Francisco.—p. 207.
*Cultivation of Micro-Organisms of Rocky Mountain Spotted Fever. S. B. Wolbach and M. J. Schlesinger, Boston.—p. 231.
Cor Triloculare Biatriatum with Coarctation of Aorta and Anomaly of Coronary Arteries. E. S. Mills, Boston.—p. 257.

Experimental Production of Herpetic Lesions.—Intramuscular inclusions identical in appearance with those described by Luger and Lauder and by Lipschütz in experimental herpetic keratitis have been demonstrated by Goodpasture and Teague in local lesions, following the inoculation of virus of herpes febrilis into conjunctiva, retina, buccal mucosa, skin, trachea, liver, suprarenal, ovary, testicle and brain and spinal cord of rabbits. The conclusion is expressed that the presence of these intranuclear bodies means the presence of the virus and that they represent the growth of the virus within the affected nuclei, as claimed by Lipschütz. The virus of herpes febrilis will infect locally organs and tissues derived from ectoderm, mesoderm and endoderm, but injury to cells in the inoculated area seems to be a necessary preliminary to local infection.

Pathway of Herpes Febrilis Virus into Central Nervous System.—The virus of herpes febrilis in experimentally infected rabbits, Goodpasture and Teague found enters the central nervous system through the pathway of nerves from a peripheral focus of infection. Within the brain and cord, the virus produces a characteristic acute herpetic lesion having a definite relation to the nerve through which it entered. The virus will traverse sensory, motor or sympathetic nerves to the brain or the cord, depending on the nervous supply to the peripherally infected area. The view is expressed by Goodpasture and Teague that the mode of transit is by way of axis cylinders, rather than perineural spaces, and not by passive transportation but by invasive proliferation.

Experimental Herpes Zoster.—An experimental disease has been produced by Teague and Goodpasture in guinea-pigs and rabbits, analogous clinically and pathologically to herpes zoster in man, by inoculating the tarred skin with the virus of herpes simplex. There are intermediate forms of herpes in man, the eruption of which is definitely neural in distribution, caused by a virus strongly pathogenic for rabbits. The virus from such a case has produced, on primary inoculation into the tarred skin, a typical experimental herpes zoster. The opinion is expressed that herpes zoster in man is produced by a strain of virus differing from the virus of herpes simplex only in virulence, or by a virus related to that of herpes simplex.

Demonstrating Herpetic Lesions of Central Nervous System.—Acute herpetic lesions of the central nervous system were specifically stained by McClellan and Goodpasture by intravenous injections of trypan blue, and the lesions rendered visible throughout their extent by subsequent fixation and clearing by the method of Spalteholz. The dye is diffused throughout the lesions, staining dead and injured nerve cells and possible fibrin. No intracellular granules of dye were observed, as the animals were acutely stained over a short interval of time.

Cultivating Rocky Mountain Spotted Fever Organism.—The experiments reported by Wolbach and Schlesinger fail to realize the expectation raised by preliminary successes, but they furnish evidence of a crucial character in regard to the causal relationships of the micro-organisms to the diseases with which they are respectively associated. Guinea-pig testes were used in the case of Rocky Mountain spotted fever, and in the case of typhus the brain of guinea-pigs was used. The material injected consisted of tissue fragments, the plasma, and the whole of the Ringer's solution used in teasing out the culture.

Kansas Medical Society Journal, Topeka

34: 1-30 (Jan.) 1924

Treatment of Mental Illness. K. A. Menninger, Topeka.—p. 1.
Old Drug (Gasoline) Dressed Up; Very Efficient Remedy, But Seldom Used. P. S. Mitchell, Iola.—p. 10.
Is Death Rate from Appendicitis Increasing, and If So, Why? R. C. Dugan, Ottawa.—p. 11.
Treatment of Diabetes Mellitus with Diet and Insulin. H. E. Marchbanks, Pittsburgh.—p. 12.

Medical Journal and Record, New York

119: 129-180 (Feb. 6) 1924

Clinical Study of Pancreatitis. J. B. Deaver, Philadelphia.—p. 129.
*Relation of Virulence to Diphtheria Carrier Problem. D. M. Lewis, New Haven, Conn.—p. 132.
One Million Drug Addicts in United States. S. A. Knopf, New York.—p. 135.
Hiccough. J. Friedenwald and M. Levy, Baltimore.—p. 140.
Six Deaths Following Fumigation with Hydrogen Cyanid. W. D. McNally, Chicago.—p. 143.
Radiologic Findings in Echinococcus Cyst of Lung and Liver. I. Glassman, New York.—p. 144.
Diagnosis of Occlusion of Posterior Inferior Cerebellar Artery. A. Gordon, Philadelphia.—p. 146.
*Pachymeningitis Hemorrhagica Interna. Nontraumatic Spinal Fluid. H. Fried, New York.—p. 149.
Leukemia. M. Glasgow, New York.—p. 152.
Psychohistorical Study of Sex Balance in Greek Art. L. P. Clark and H. R. Cross, New York.—p. 154.

RESPIRATORY SUPPLEMENT

Value and Limitations of Roentgen Ray in Diagnosis of Pulmonary Affections. B. P. Stivelman, Bedford Hills, N. Y.—p. i.
Frenzied Therapeutics in Tuberculosis. L. S. Peters, Albuquerque, N. Mex.—p. iv.
Accessory Sinusitis; Sources of Diagnostic Error. M. M. Pomeranz, New York.—p. vii.
Chronic Bronchitis of Nasal Origin. W. F. Von Zelinski, Fort Bragg, N. C.—p. ix.
Abscesses of Nasal Septum; Etiology and Treatment of Resulting Deformities. W. W. Carter, New York.—p. xi.
Waring Suction Tonsillectomy. J. B. H. Waring, Blanchester, Ohio.—p. xiii.
Endobronchial Treatment of Bronchopulmonary Affections. J. P. De River, San Francisco.—p. xv.

Relation of Virulence to Diphtheria Carrier Problem.—There is evidence in Lewis' record for New Haven, Conn., that virulent nasal carriers, other than convalescent cases, usually gain their carriership from avirulent organisms, rather than from contact with cases. There is also evidence that virulent nasal carriers are made during or following an attack of certain communicable diseases, mostly from contact individuals, nasal carriers of avirulent organisms. The cyclic frequency of the disease is apparently referable to the correlating frequencies of other specific communicable diseases, mainly measles.

Spinal Puncture in Pachymeningitis Interna.—Fried urges the employment of spinal puncture both as a curative and diagnostic measure, in cases of pachymeningitis hemorrhagica interna. In a case cited, reduction of the intraspinal pressure by lumbar puncture brought definite and permanent relief, and after a convalescence of three weeks, the patient recovered entirely, except for a mild insomnia and slight muscular stiffness, which persisted for one or two weeks longer.

Military Surgeon, Washington, D. C.

54: 1-128 (Jan.) 1924

Recent Progress in Aviation Medicine. L. H. Bauer.—p. 1.
Benefits Derived by Military Medical Science from Animal Experimentation. E. G. Huber.—p. 9.
Defects in Applicants for Enlistment and for Citizens' Military Training Camp, New York City. A. G. Love.—p. 34.
Predominance of Nonbacterial Over Bacterial Etiology in 891 Cases of Epidemic Acute Respiratory Disease. L. B. Bibb.—p. 53.
Hydrochloric X of Bovine Parathyroid and Its Phosphotungstic Acid Precipitate. A. M. Hanson.—p. 76.
Joseph Leidy. J. F. Coupal.—p. 82.
Tuberculosis in Chronic Inflammation. R. E. Scott and R. W. French.—p. 91.
Hysterical Appendicitis—Case Report. J. H. Francis.—p. 97.

Nebraska State Medical Journal, Norfolk

9: 41-76 (Feb.) 1924

Fear and Obstetric Efficiency. E. C. Philbrick, Lincoln.—p. 41.
Circulatory System. B. F. Lorance, Auburn.—p. 47.
Disturbances of Gastric Function. H. J. Lehnhoff, Lincoln.—p. 51.
Compensible Injuries Under Workmen's Compensation Act. C. C. Johnson, Lincoln.—p. 54.
Psychology of Treatment of Tuberculosis. M. J. Breuer, Lincoln.—p. 58.
Abdominal Trauma. C. H. Root, Bassett.—p. 62.
*Abscess of Liver. B. R. McGrath, Grand Island.—p. 63.
Ovarian Hematoma. F. L. Wilson, Stuart.—p. 65.

Abscess of Liver of Intestinal Origin.—McGrath thinks that in his case a previously existing intestinal condition was bacterial in origin; that during the course of this inflammation a tiny vein became thrombosed; that an infected embolus floated from this into the portal system to be intercepted in the liver and cause the formation of an abscess in the right lobe. No ameba were found in the stools.

New York State Journal of Medicine, New York

24: 49-100 (Feb. 1) 1924

*Results of Active Immunization with New Mixture (1/10 L+) of Toxin-Antitoxin in Public Schools of Manhattan and Bronx. A. Zingher, New York.—p. 49.
Histamin in Diagnosis and Treatment of Intestinal Intoxications. C. W. Lieb, New York.—p. 57.
*Is Heroin a Necessary Drug? S. D. Hubbard, New York.—p. 61.

New Toxin-Antitoxin Mixture.—Zingher and his associates found that mixtures with the larger number of L+ doses were not more efficient than those with the smaller number of L+ doses, as long as the mixtures were equally toxic (underneutralized). In fact, mixtures with the smaller number of L+ doses per cubic centimeter but showing greater toxicity for the guinea-pig, gave better immunity results than those with the larger number, which were more neutralized. On this basis mixtures of toxin-antitoxin were prepared which contained only a fraction of an L+ dose of toxin per cubic centimeter. These mixtures were balanced, however, so that the toxic or underneutralized fraction of the toxin-antitoxin was similar to that of mixtures containing from 3 to 6 L+ doses of toxin per cubic centimeter. This gives an active immunity in a large percentage of children. The new mixture of toxin-antitoxin contains 1/10 L+ per cubic centimeter. Its preparation is described in detail. The conclusion is reached that an underneutralized mixture, of which 5.0 c.c. causes acute death of the guinea-pig in five to six days, 3.0 c.c. death in six to ten days, and 1.0 c.c. paralysis in fifteen to eighteen days, and death in eighteen to twenty-five days, is the best type of mixture to be used for active immunization. The local and constitutional reactions with the new type mixture (1/10 L+) are slight and compare favorably with those noted

with the old type mixtures (3 to 5 L+). The new type mixture can be given even to older children and adults without fear of any marked local disturbance. Three doses of 1.0 c.c. each are given intramuscularly at intervals of from seven to ten days.

Interdict Manufacture of Heroin.—It is Hubbard's opinion that heroin should be totally and absolutely abolished by all nations.

Northwest Medicine, Seattle

23: 1-52 (Jan.) 1924

*Treatment of Nontuberculous Pulmonary Suppuration. C. A. Hedblom, Rochester, Minn.—p. 1.
Use of Roentgen Ray in Dignosis of Pulmonary Tuberculosis. R. W. Matson, Portland, Ore.—p. 9.
Rest in Home Treatment of Pulmonary Tuberculosis. W. B. Penney, Tacoma, Wash.—p. 13.
Responsibility of Carrier for Infectious Diseases. S. H. Johnson, Bellingham, Wash.—p. 16.
Socialized Medicine in Norway. T. Torland, Seattle.—p. 19.
Dangers Within Medical Fraternity. E. H. Van Patten, Dayton, Wash.—p. 22.
Morbidity in Maternity. H. H. Skinner, Yakima, Wash.—p. 25.
Pupil in Health and Disease. C. L. Hoeffler, Everett, Wash.—p. 28.

Treatment of Nontuberculous Pulmonary Suppuration.—The nontuberculous pulmonary suppurations discussed by Hedblom include abscess, bronchiectasis, and suppurative pneumonitis. Acute peripheral abscess which shows progressive improvement, he treats by postural drainage; other abscesses are drained. Central abscesses not suitable for surgical drainage are best suited for pneumothorax therapy. Chronic abscesses involving destruction of the greater proportion of a lobe or whole lung are practically incurable, except by lobectomy. Localized saccular bronchiectasis may be drained with marked improvement so long as the drainage is maintained. Diffuse unilateral bronchiectasis may be treated as a tentative measure by pneumothorax collapse, but such treatment has yielded a small proportion of cures, and the improvement is probably dependent on continued treatment. Lobectomy is of limited application, and has yielded a low proportion of cures and a high mortality. Extrapleural thoracoplasty is of wide application and has resulted in a relatively large proportion of cases of marked improvement, and is in Hedblom's experience, without mortality. Combined chronic abscess and chonchiectasis especially of indeterminate grade, are relatively unfavorable to any method of treatment, but extrapleural thoracoplasty offers a fair prospect for improvement which may approximate cure.

Public Health Journal, Toronto

15: 1-48 (Jan.) 1924

Psychology and Psychiatry. Fourth Maudsley Lecture. C. K. Clarke.—p. 9.
Wassermann Reaction. J. Gibbs.—p. 16.
*Carcinoma of Stomach. Relation to Preceding Gastric Disease. W. Goldie.—p. 26.
February—Peak Month. R. George.—p. 34.
Men Who Run Away. F. N. Stapleford.—p. 36.

Preceding Symptoms of Gastric Carcinoma.—Analysis of 108 cases of carcinoma of the stomach by Goldie showed that in seventy-five the first symptoms of indigestion arose with the onset of carcinoma. Thirty-three patients give a history of indigestion for various periods, but in all there was a distinct change of symptoms with the onset of carcinoma. Of these thirty-three, twelve gave a distinct history of ulcer; five of these had had symptoms recurring or continuous for twenty, sixteen, six, three and two years, respectively; one patient had been without symptoms two years; six patients had been without symptoms of ulcer more than ten years; nine gave a history of gallbladder disease with indigestion for many years; three gave a history of duodenal ulcer, one of these with symptoms during the last two years, and two were without symptoms for sixteen and nine years, respectively; one gave a history of recurring attacks of acute gastroenteritis; one had angina pectoris and stomach symptoms five years; one gave a history of nausea and vomiting when under nervous tension; seven had indefinite indigestion; two had indefinite symptoms from childhood; two had indefinite symptoms for five and four years, respecitvely, and three with indefinite history had been without symptoms for twenty and fifteen years, respectively.

Rhode Island Medical Journal, Providence

7: 1-16 (Jan.) 1924

Tuberculous Glands of Neck. F. V. Hussey, Providence.—p. 1.
Treasures of Library of Rhode Island Medical Society. H. G. Partridge, Providence.—p. 5.
Influenza Meningitis. H. P. B. Jordan, Providence.—p. 8.

South Carolina Medical Association Journal, Greenville

20: 1-32 (Jan.) 1924

Abscess of Lung: Two Cases. N. B. Heyward, Columbia.—p. 4.
Blood Transfusion in Surgery. D. L. Maguire, Charleston.—p. 9.
Tetany. L. B. Salters, Florence.—p. 12.
Modern Management of Diabetes Mellitus. J. H. Gibbes, Columbia.—p. 17.

Southern Medical Journal, Birmingham, Ala.

17: 1-74 (Jan.) 1924

Modern Problems of Preventive Medicine. W. S. Leathers, Jackson, Miss.—p. 1.
Potentialities of Public Health as an Organizing Factor in Medicine. W. S. Rankin, Raleigh, N. C.—p. 7.
*Plea for More General Consideration of Intestinal Toxemia in Diagnosis and Treatment of Disease. A. Eustis, New Orleans.—p. 12.
Treatment of Child. W. McKim Marriott, St. Louis.—p. 15.
Modern Dermatologic Therapy. H. Fox, New York.—p. 18.
*Three Cases of Carcinoma of Papilla of Vater. I. Abell, Louisville, Ky.—p. 24.
Gynecologic Urology: Neglected Field. H. W. E. Walther, New Orleans.—p. 28.
Focal Infection as Cause of Prolonged Disability in Injuries. W. W. Harper, Selma, Ala.—p. 29.
Blast Action of Short-Barrel Revolvers Causing Large Wounds of Entrance and Small Wounds of Exit: Comparative Effects with Other Pistol Wounds and Medicolegal Importance. J. D. Rogers and J. R. Nevitt, Washington, D. C.—p. 31.
Progress in Obstetrics. J. T. Altman, Nashville, Tenn.—p. 32.
Postdiphtheritic Laryngeal Stenosis. J. H. Foster, Houston, Tex.—p. 36.
Paroxysmal Cough, Frequent Symptom of Infection of Paranasal Sinuses in Children. C. G. Coakley, New York.—p. 38.
William Osler, Clinician-Teacher. S. R. Roberts, Atlanta, Ga.—p. 40.
Surgeon: His Obligations. J. W. Barksdale, Jackson, Miss.—p. 42.

Etiologic Importance of Intestinal Toxemia.—Eustis does not plead for the recognition of intestinal toxemia as a clinical entity, but for its recognition in the treatment of definite pathologic conditions, in which absorption of poisons from the intestinal canal may influence the symptomatology, and even the prognosis of the disease.

Carcinoma of Papilla of Vater.—Abell is convinced that in the treatment of these cases the best results are to be obtained by doing the radical removal in two stages, first performing a cholecystenterostomy and allowing sufficient time to elapse to permit recovery of strength before undertaking the removal of the tumor. This is then best accomplished by transduodenal excision, suturing the common duct mucosa to that of the intestine at the point of division. If the extension of the growth is such as to preclude the possibility of doing this, the propriety of attempting more radical procedure is questionable.

Southwestern Medicine, Phoenix, Ariz.

8: 1-56 (Jan.) 1924

Surgical Risk of Sanatorium Tuberculous Patient. F. J. Nordby and W. R. Abbott, Fort Bayard, N. M.—p. 3.
Teaching Value of Postmortem Examinations. W. W. Waite, El Paso.—p. 11.
Local Anesthesia in Serious Cases. T. B. Smith, Wilmington, Calif.—p. 14.

U. S. Naval Medical Bulletin, Washington, D. C.

20: 1-148 (Jan.) 1924

Climatic Bubo. C. S. Butler.—p. 1.
Notes on Three Hundred Fifty Appendectomies. L. W. Johnson.—p. 7.
*Clinical Trial of Ellis Test for Tuberculosis. D. Ferguson.—p. 17.
*Cancer in St. Croix, Virgin Islands. C. B. VanGaasbeek.—p. 31.
*Sugar in Urine. C. W. O. Bunker and R. L. Thrasher.—p. 35.
Endothelioma. L. H. Williams.—p. 39.
Glanders in Man. L. H. Williams and R. C. Satterlee.—p. 41.
Acute Appendicitis Within a Hernia Sac. C. B. VanGaasbeek.—p. 43.
Chancre of Palmar Surface of Hand. J. E. Roor, Jr.—p. 44.
Case of Recurrent Diffuse Scleroma. C. W. Lane.—p. 45.
Case of Acute Yellow Atrophy of Liver. G. L. McClintock.—p. 49.

Ellis Test for Tuberculosis.—Ellis developed a test for active tuberculosis a number of years ago, which he considered accurate in 90 per cent. of cases. His investigations lead him to regard the papillary layer of the skin, as the most

keenly sensitive to tuberculous reaction. He believed that the specific reaction which takes place in the deeper epithelial layer explains to a large extent the erratic results obtained by Pirquet's superficial cutaneous method, as when the papillary layer was accidentally injured, much more definite results would be obtained than when it was uninjured. Ellis used three dilutions of old tuberculin, 1:10, 1:100 and 1:500, the diluent in each case being 0.5 per cent. phenol (carbolic acid) in physiologic sodium chlorid solution. In a series of 136 known cases of active, advanced, pulmonary tuberculosis examined by Ferguson, the Ellis test gave only 34 per cent. of definite positive reaction. In thirty-six clinically non-tuberculous persons, it gave 28 per cent. of positive reactions. It was shown to react positively in the presence of healed, inactive, apical infiltration. No prognostic conclusions could be inferred from the test.

Cancer in Virgin Islands.—Among 5,720 patients treated in two hospitals on the island St. Croix, there have occurred fourteen cases of authentic cancer, distributed as follows: 4 epitheliomata, including 1 of the tongue, 2 of the face and 1 of the anus; 3 carcinomata of the breast; 5 carcinomata of the uterus; 1 carcinoma of the liver, metastasized from the head of the pancreas, and 1 carcinoma of the stomach. Van Gaasbeek states that the people of St. Croix appear to be relatively less susceptible to cancer probably because of (1) their black color protecting them from the rays of the sun, the darker the individual the greater the protection; (2) simple diet, especially lacking in the highly seasoned protein foods; (3) lack of alcoholism; (4) nonuse of powders and in many cases of soap; (5) and especially their physical condition and mode of living.

Tests for Sugar in Urine.—To determine whether Benedict's qualitative test has any quantitative significance, Bunker and Thrasher applied the Folin and Berglund test for the estimation of sugar in normal urine to 190 urines, 109 of which were negative by Benedict's tests, while eighty-one showed greenish turbidities. Eighty-eight per cent. of the negative results were with urines containing 0.1 per cent. or less of sugar. Hence, it is concluded that Benedict's test has quantitative significance in only the most general terms. The authors emphasize that greenish turbidities secured in this test demand care in their interpretation, and are to be considered pathologic only when other features of the case warrant such an assumption.

Tennessee State Medical Association Journal, Nashville

16: 313-342 (Jan.) 1924

Shockless Surgery; Crile's Contribution; Simple and Dependable Method of Preparation of Patient. F. D. Smythe, Memphis.—p. 313.
Obstetric Emergencies in Latter Months of Pregnancy. B. L. Burdette, Shelbyville, Tenn.—p. 318.
Traumatic Peritonitis from Nonpenetrating Violence. E. H. Baird, Dyersburg, Tenn.—p. 322.
Polycystic Kidney. J. H. Smith, Memphis.—p. 326.
Intraperitoneal Injections in Children. O. W. Hill, Knoxville, Tenn.—p. 328.

West Virginia Medical Journal, Huntington

19: 1-56 (Jan.) 1924

Rational Treatment of Pneumonia. A. H. Hoge, Bluefield.—p. 1.
Syphilitic Aortitis M. I. Medeloff, Charleston.—p. 6.
Ethylene, Routine Anesthetic. E. B. Henson, Charleston.—p. 9.
Blood Pressure. D. A. MacGregor, Wheeling.—p. 11.
Arterial Hypertension. C. G. Willis, Huntington.—p. 19.
Pyelitis. W. B. Crum, Martinsburg.—p. 23.

Wisconsin Medical Journal, Milwaukee

22: 335-408 (Jan.) 1924

Surgery of Spastic Paralysis. F. J. Gaenslen, Milwaukee.—p. 374.
*Furunculosis of Nose. T. L. Tolan, Milwaukee.—p. 377.

Furunculosis of Nose.—Three cases are reported by Tolan. One patient developed an ethmoid infection and died within ten days of meningitis. The second patient recovered after the septal abscess had been opened. In the third case, edema of the face developed and death was due to pneumonia and pulmonary edema. The entire period of illness covered only a week or eight days. In the two fatal cases "squeezing" the furuncle seems to have precipitated diaster.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

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British Journal of Children's Diseases, London

20: 193-266 (Oct.-Dec.) 1923

*Peculiar Fatal Convulsions in Four Children, Whose Father Suffered from Lead Poisoning. J. Thomson.—p. 193.
*Severe Tuberculin Reactions, Scrofula and Status Lymphaticus. C. McNeil.—p. 197.
*Case of Tuberculosis in Infancy. N. B. Capon.—p. 209.
*Dilatation of Aorta in Children Associated with Chronic Interstitial Nephritis. J. H. Sheldon.—p. 216.
Typhoid Fever Complicated by Purpura Hemorrhagica. A. Panayotatou.—p. 224.

Fatal Convulsions in Children Whose Father Had Lead Poisoning.—The chief points of clinical interest in Thomson's case seem to be that all of the children born after the father's lead poisoning began were seriously affected, although the mother remained quite healthy. One patient, aged 10 months, continued, until near the end, in excellent bodily and mental health—apart from fits; and showed no sign of rickets, indigestion, mental dulness or mental peculiarity. The fits first appeared at 10 weeks. Death occurred at 18 months.

Severe Tuberculin Reactions in Scrofula.—In a small percentage of tuberculous infections, the tuberculin cutaneous reactions are unusually severe. According to McNeil, in a majority of such cases of severe tuberculin reaction the type of lesion is that formerly known as scrofulous, and commonly includes a scrofulous or phlyctenular conjunctivitis. There is evidence that such cases of scrofula are associated with status lymphaticus. McNeil would retain the term "scrofula" as denoting types of tuberculous infection which are associated with the morbid condition status lymphaticus, and which in consequence exhibit an intensified reaction to the tubercle bacillus and its poisons.

Tuberculosis in an Infant.—In Capon's case, death occurred on the forty-first day after delivery. Necropsy showed that death was due to acute miliary tuberculosis. Microscopic sections of the lungs, brain, spleen, kidneys and uterus showed tubercle bacilli. Microscopically, the fallopian tubes and ovaries appeared normal. This case emphasizes the diagnostic difficulties in tuberculosis in infancy. The condition may be strongly suspected when the mother has active tuberculosis, but it has no definite symptomatology. Pallor, wasting, enlargement of the liver and spleen and irregular pyrexia are the most frequent findings. The more severe the infection, the more likely is the child to be born prematurely. In the case reported, it was impossible to state the route by which infection occurred, especially since the placenta was not examined histologically. The lesions found in the viscera of the child were very advanced, which would support the possibility of intra-uterine infection. In favor of neonatal infection is the fact that the infant was in contact with the mother for the first twenty-five days of its life. Only after that interval was the nature of the mother's illness suspected. It is interesting to note that three examinations of the mother's sputum for tubercle bacilli were negative.

Dilatation of Aorta Result of High Blood Pressure.—A case is described by Sheldon in which dilatation of the aorta in a boy, aged 10 years, was produced by the high blood pressure resulting from chronic interstitial nephritis. Death was due to uremia.

British Medical Journal, London

45-92 (Jan. 12) 1924

Nature of Control of Metabolism of Carbohydrates in Animal Body. J. J. R. Macleod.—p. 45.
*Diabetes Mellitus and Its Treatment by Insulin. G. A. Allan.—p. 50.
*Diabetes and Insulin. J. A. Nixon.—p. 53.
*Insulin Treatment Without Blood Sugar Estimations. A. Innes.—p. 55.
Two-Loop Suture. J. Craig.—p. 56.
New Outlook in Cardiology. J. Mackenzie.—p. 57.
New Skin Forceps. C. P. Childe.—p. 61.

Insulin in Diabetes.—There is, says Allan, no quick and easy way to treat diabetes. Unless fundamental conceptions

of the disease are appreciated, it is impossible to treat it rationally. Insulin is a great aid, but it has not replaced the need for close attention to diet. Added to dietetic treatment, insulin has improved the outlook for the diabetic patient. It will give him a sense of well-being which he did not have before and make his diet more palatable; it will increase his physical efficiency; it may avert coma. It will prolong life, but it is not a cure for diabetes mellitus, and it is not devoid of danger.

Insulin in Diabetes.—The feeling of well-being that insulin produces is immediate and patients become good judges of what is sufficient for their needs. Nixon suggests that it may be possible to keep patients in health by giving short courses in insulin with alternating periods of discontinuance.

Administration of Insulin Without Blood Sugar Estimations.—Innes reports a case of diabetes successfully treated by insulin without any blood sugar estimations. Two days fasting, then a "ladder diet" until the patient's urine begins to show sugar, gives the starting point for the first insulin injection. Food must be ready for the patient as soon as he receives his injection and in no circumstances can more than fifteen minutes be allowed to elapse. The patient must always have sugar and water at his bedside, and be advised to take a small amount should symptoms of faintness, depression and air hunger appear. No attempt should be made to get a constantly sugar-free urine. A trace of sugar in the morning specimen is a safeguard, giving a feeling of assurance that no harm can result from the treatment.

Calcutta Medical Journal

18: 481-518 (Nov.) 1923

Urea Stibamine in Kala-Azar. U. N. Brahamchari.—p. 481.
Leukoderma. G. Panja.—p. 491.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 500.

China Medical Journal, Shanghai

37: 979-1062 (Dec.) 1923

*Possible Incidence of River Fever (Tsutsugamushi Disease) in Central Yangtze Valley. E. C. Faust.—p. 979.
Surgical Aspects of Blood Transfusion. R. F. Maddren and L. Chi-Pan.—p. 987.
*Cervical Lymphosarcomas; Ninety Cases. J. O. Thomson.—p. 1001.
Clinical Physiology. H. G. Earle.—p. 1010.
Diet Studies in Shantung. W. H. Adolph.—p. 1013.
*Blood Analysis. Some New Methods. H. Wu.—p. 1019.

Japanese River Fever.—Two cases with a primary diagnosis of schistosomiasis japonica, but having in blood and spleen smears micro-organisms resembling stage for stage the micro-organisms described for Japanese river fever and exhibiting certain typical symptoms of this disease, are reported by Faust. He says there are many cases in China of splenomegaly with obscure etiology.

Cervical Lymphosarcoma.—In the South of China, patients with tumors seem to be numerous, and a large proportion of the tumors, Thomson says, are malignant. Among 1,253 tumors removed by operation, 376 were malignant. Of these 128 were sarcomas, and ninety of these were cervical lymphosarcomas.

New Methods of Blood Analysis.—The methods proposed by Wu for the determination of hemoglobin are said to be free from the error in the acid hematin method. They are based on the comparison of the color of alkaline hematin or that of methemoglobin or cyanhemoglobin in an ammoniacal solution. They are intended to be used with a colorimeter, but they can easily be adapted to an instrument of the Sahli type.

Indian Medical Gazette, Calcutta

59: 1-62 (Jan.) 1924

Venereal Disease Problems Among Indian Women. C. A. Gourlay.—p. 1.
Serologic Diagnosis of Typhus by Weil-Felix Reaction. E. S. Phipson.—p. 7.
*Pseudo-Organism in Blood in Dengue. R. Knowles and S. A. S. B. M. D. Gupta.—p. 11.
Deterioration of Insulin in India. J. Taylor and A. R. J. Douglas.—p. 26.
Treatment of Syphilis by "Bismuth." C. F. Chenoy.—p. 28.
Case of Pancreatic Cyst in Child. A. K. Raghavan.—p. 29.
Case of Lymphatic Cyst or Hydrocele of Neck. A. K. Raghavan.—p. 30.
Cystic Tumor of Omentum. B. Das.—p. 30.

Organisms in Blood in Dengue.—On examination of blood from cases of dengue and of cultures in the Wenyon-Noguchi medium from such blood; in the blood of rabbits and of rhesus monkeys (but not in that of guinea-pigs) inoculated with dengue bloods; and in cultures from the blood of these animals, Knowles and Gupta say, they repeatedly found a form which under dark ground examination appears to be a typical leptospira.

Irish Journal of Medical Science, Dublin

1-48 (Jan.) 1924

Unusual Renal Tumors. W. I. DeC. Wheeler.—p. 1.
Some Subcutaneous Injuries of Abdomen. C. MacAuley.—p. 19.
Excision of Elbow. R. A. Stoney.—p. 30.

Journal of Tropical Medicine and Hygiene, London

37: 1-12 (Jan. 1) 1924

Management of Medical Research. R. Ross.—p. 1.
Control of Malaria. M. Watson.—p. 6.

Lancet, London

2: 59-112 (Jan. 12) 1924

Types of Glycosuria and Their Treatment. W. L. Brown.—p. 59.
Insulin in General Practice. G. Graham.—p. 63.
*Case of Heart-Block Presenting Some Unusual Signs. A. J. S. Pinchin and S. R. Gloyne.—p. 66.
*Criteria of Cure in Tuberculosis of Guinea-Pig. E. H. Kettle.—p. 69.
*Serum Diagnosis in Syria. E. H. R. Altounyan.—p. 72.

Heart Block with Unusual Signs.—Pinchin and Gloyne report the case of a man, aged 20, who was ill four months. During the whole illness he had to be kept flat, and much of the time had the foot of his bed raised. The auricular beat at the commencement was forcible in character and heard plainly at the apex. The authors assume the presence of two lesions of the bundle system, the upper rapidly involved the main bundle; the lower was probably situated near the fork of the branch, so that extension or recession of the inflammatory area at one time involved one side of the bundle and at another time the other. A simultaneous involvement of both branches may have been the cause of death. There was a slowing of the auricular rate under digitalis, and alteration of the auricular complexes as evidenced by inverted P waves.

Criteria for Cure in Tuberculosis.—Kettle concludes that the evidence usually brought forward to demonstrate the cure of tuberculosis in guinea-pigs is invalid, and that such indications of healing as have been described, occur naturally in untreated animals; further, they do not indicate increased resistance to tubercle bacilli in the animal itself, for they are local in their manifestations, and are associated with progress of the disease elsewhere in the body. The original observations in support of Dreyer's treatment, in the absence of adequate controls, Kettle holds to be inconclusive. Whether or not this antigen is of value in the treatment of tuberculous guinea-pigs can only be answered by further experimentation. In these experiments it was not possible to demonstrate any curative action of the diaplyte antigen. There is, however, a good deal to suggest that the antigen had an adverse action on guinea-pigs treated with it, even in comparison with bacillary emulsion.

Weil-Felix Reaction in Typhus.—Among fifty-seven typhus patients examined, Altounyan found the Weil-Felix reaction negative in three. The earliest day on which the reaction was obtained was the fifth, the latest four weeks from the onset. The highest effective dilution was 1:5,000; the lowest, 1:50. A large proportion reacted in dilution of 1:250 and more. Altounyan was unable to confirm the observations of K. Bauer on the effect of typhus serum on the Wassermann reaction. The effect of typhus serum on typhus organisms was investigated in three cases with negative results.

Medical Journal of South Africa, Johannesburg

19: 141-174 (Dec.) 1923

Clinical Features of Lobar and Bronchopneumonia. O. K. Williamson.—p. 143.
Treatment of Bronchopneumonia and Lobar Pneumonia. R. L. Girdwood.—p. 145.
Diathermy in Pneumonia. L. E. Ellis.—p. 147.
"Survival of Unfit"; Remedy. H. A. Loeser.—p. 149.

Bulletin de l'Académie de Médecine, Paris

91: 69-84 (Jan. 15) 1924

*Preventive Vaccine Therapy of Dysentery. A. Gauthier.—p. 72.

Preventive Vaccine Therapy of Dysentery.—Gauthier reports the results of his campaign against dysentery among the Greek refugees. He gave polyvalent vaccines containing three billions of germs per c.c. by mouth. The doses used were 1 c.c. for adults; 0.5 c.c. for children over 2 years, and 0.25 under 2, repeated on three successive days. The vaccine has to be taken at least one hour before a meal. The serum of the patients agglutinates the bacilli from the third day. The maximum is on the eighth day; then it decreases for two or three months progressively. As far as he was able to ascertain, no infection occurred among the 29,880 persons thus vaccinated. A little larger doses were of use in the treatment of the disease.

Bulletins de la Société Médicale des Hôpitaux, Paris

48: 23-61 (Jan. 18) 1924

Encephalitis with Localization in Medulla and Pons. Rathery and Kourilsky.—p. 27.
Leukemia and Tuberculosis. M. Quentin.—p. 31.
*Urobi'in in Duodenal Contents. Chiray and R. Benda.—p. 34.
Mediastinal Malignant Granuloma. P. Menetrier and Bertrand-Fontaine. —p. 45.
*Nursing Rooms in Hospitals. P.-F. Armand-Delille.—p. 55.
Diabetes in Malaria. G. Etienne and J. Benech.—p. 59.

Urobilin in Duodenal Contents.—Chiray and Benda add to 5 c.c. of duodenal contents one drop of a solution of hydrogen peroxid and 5 c.c. of a 10 per cent. solution of hydrochloric acid (30 gm. of the commercial acid and 70 gm. water). They heat the mixture on a water-bath until a green precipitate forms (about five minutes). Then the fluid is cooled completely in water and extracted with 5 c.c. of pure chloroform. The procedure changes bilirubin into biliverdin, which is insoluble in chloroform. It also changes urobilinogen into urobilin, which can be determined by the usual methods. They confirm its presence in normal contents, and absence in catarrhal icterus and a case of myeloid leukemia. They also report some cases in which they compared the concentration of urobilin in the duodenum, urine, feces and blood.

Nursing Rooms in Hospitals.—Armand-Delille reports his favorable experiences with the individual-cubicle day nurseries instituted in the hospitals of Paris for the infants of the employees.

Paris Médical

53-84 (Jan. 19) 1924

Diseases of Respiratory System in 1924. P. Lereboullet and L. Petit. —p. 53.
*Fat Metabolism in the Lungs. A. Gilbert and J. Jomier.—p. 62.
*Dry Pleurisy and Pleuropneumonia. E. Sergent.—p. 68.
*Interlobar Reactions in Pneumonia in Children. G. Mouriquand and M. Bernheim.—p. 77.

Fat Metabolism in the Lungs.—Gilbert and Jomier review especially the results of their histologic examination of fat in the lungs.

Dry Pleurisy and Pleuropneumonia.—Sergent recalls Péron's work which has demonstrated the regular involvement of the superficial parts of the lungs in fibrinous pleuritis. Nevertheless it is well for practical purposes to distinguish between dry pleurisy with the main changes in the pleura, and the "cortico-pleuritis" affecting more the parenchyma of the lung. The expectoration of these patients resembles the pneumonic sputum, and physical signs of a lobular pneumonia (dullness, tubular respiration, râles) are added to the symptoms of pleurisy. The most important localization of such a pleuritis is the apex. Spontaneous pain is frequent. Sometimes pain is produced only by percussion or pressure. The most constant point of predilection is in the middle of a line uniting the trapezius tubercle of the spine of the scapula and the space between the spinous processes of the seventh cervical and first dorsal vertebrae. Pressure on the supraclavicular fossa may also be painful. Difference of pupils is very frequent. Mydriasis in the beginning and miosis later seem to be characteristic. An enlarged lymphatic gland situated immediately behind the clavicle at the external border of the sternocleidomastoid muscle should call attention to the apical pleura. This "apical syndrome" (pressure pain, adenitis, and anisocoria) may occur also in inflammations of other than tuberculous origin (acute infections, wounds). The axillary glands are generally enlarged in pleuropneumonia affecting the interlobar fissure.

Interlobar Reactions in Pneumonia in Children.—Mouriquand and Bernheim restrict their paper to the nonsuppurative ("silent") affections of the interlobar fissure which occur in pneumonia and bronchopneumonia in children. Roentgenologic examination reveals a dark transverse shadow. Since tuberculosis in children gives sometimes a similar shadow, it is important to know the possible pneumonic origin. Purulent interlobar pleuritis causes very pronounced symptoms (great fluctuations of temperature, aspect of severe infection). Exploratory puncture reveals pus and gives the indication to operate. In the "silent" cases, nothing needs to be done. A puncture revealed in one of their patients a sterile puriform exudate.

Presse Médicale, Paris

32: 69-76 (Jan. 23) 1924

*Mortality in Operations for Goiter. F. de Quervain.—p. 69.
*Action of Drugs on the Uterus. H. Vignes.—p. 70.
*Nephritis from Rhinopharyngeal Foci. M. Laemmer and J. Tarneaud. —p. 72.

Mortality in Operations for Goiter.—De Quervain reports a total mortality of 0.86 per cent. in his 2,200 operations for simple goiter. It would be a great fallacy to tell the patient this figure as indicating the possible danger. Of 1,682 patients under 40, only one died. In the fifth decade the mortality was 1 per cent.; in the sixth, 4.1 per cent.; in the seventh nearly 20 per cent., and in still older patients, 25 per cent. Therefore it is necessary to operate before the age of 40, and to exclude all other patients unless there is a marked compression of the trachea. Even then, the operation should be only unilateral. The danger of recurrence is small after 40, and cosmetic reasons do not count at that age.

Action of Drugs on the Uterus.—Vignes emphasizes the necessity of exact determination of the tonus of the uterus before using any drugs. The facility with which one can palpate the fetus helps in this. Persistence of pains between the contractions indicates an increased tonus. Labor may be protracted by an increased tonus as well as by atony. The graver cases are due to hypertonia. Pituitary extract is strictly contraindicated in such conditions. Quinin promotes contractions by diminishing the tonus. In some cases it is not effective. Anesthetics of all sorts act very favorably in hypertonia of the uterus. They are disastrous when the labor pains are insufficient. It is a great mistake to promise the woman an anesthetic in advance. Intraspinal anesthesia is very valuable if operative measures (version, etc.) are difficult because of the excessive tonus.

Nephritis from Rhinopharyngeal Foci.—Laemmer and Tarneaud point to the value of systematic examination of the urine in all persons (especially children) suffering from infections of the nose and throat. On the other hand, removal of adenoids and tonsillectomy are indicated in such cases.

32: 77-88 (Jan. 26) 1924

Inaugural Lecture on Neurology. G. Guillain.—p. 77.
*Chemotherapy and Proprietary Pharmaceuticals. L. Cheinisse.—p. 83.

Chemotherapy and Proprietary Pharmaceuticals.—Cheinisse reviews the recent French reaction against proprietary preparations. He believes that only such a powerful organization as the American Medical Association would be able to deal successfully with the evil. Yet, he insists, the Académie de médecine and other institutions should take up the task to enforce publication of the composition of secret remedies, and elimination of fraudulent claims.

Policlinico, Rome

31: 1-64 (Jan. 15) 1924. Surgical Section

Arthrodesis of Foot by Temporary Astragalectomy. S. Crainz.—p. 1.
Topography of Biliary Passages. A. de Castro.—p. 8.
Papillomatosis of Ureters. E. Ettorre.—p. 13.
*Fracture of Neck of Femur. E. Fossataro.—p. 21.
*Idiopathic Gastroptosis with Ectasia. O. Marchesini.—p. 26.
Primary Lymphoblastoma of the Ovary. G. Petta.—p. 51.
Treatment of Cancer of Bladder. M. Ascoli.—p. 58.

Function of Limb After Fracture of Neck of Femur.—Fossataro reports experimental and clinical experiences which show that the function of the limb is scarcely impaired when the fractured neck of the femur heals without bony callus outside, especially in the elderly. The less periosteum callus that forms, the better the functional outcome. In dogs, the fracture did not entail lameness although no cast was applied.

Surgical Treatment of Large Sagging Stomach.—Marchesini's success in curing the severe clinical symptoms described should encourage practitioners to advise operative measures earlier than is usually the case. He fastened the loop after posterior gastro-enterostomy to the posterior layer of the mesocolon. The stomach itself was made smaller by Schiassi's method of taking up folds. The benefit was prompt and permanent.

Tumori, Rome

10: 257-380 (Jan. 15) 1924

*Metabolism of Irradiated Cancer. N. Piccaluga.—p. 257.
*Aspiration Metastasis of Cancer. G. Lino.—p. 293.
Hypernephroma in Kidney Pelvis. F. Rietti.—p. 303.
Recurrence of Cancer After Ten Years. B. Rossi.—p. 338.
Systemic Lymphoblastomatosis of Breast. Frascella.—p. 343.

Metabolism of Irradiated Cancer.—Piccaluga irradiated tumor cells from different organs, and studied the time necessary for reduction of methylene blue. The action was proportional to the dosage of the roentgen rays. Smaller doses increased, large ones inhibited the reduction. Tumor cells required much larger doses than cells from most normal tissues. Nerve cells were very resistant.

Aspiration Metastasis of Cancer.—Lino reports a case of sarcoma of the base of the skull with invasion of the pharynx. Among other metastases there were some at the base of the lungs which seemed to be due to aspiration of particles of the tumor.

Anales de la Facultad de Medicina, Montevideo

8: 991-1090 (Nov.) 1923

*The Bundle of His. H. J. Rossello and O. Rodríguez.—p. 991.
Lymphogranulomatosis. B. Varela Fuentes and Estapé.—p. 1005.
*Pyelitis in Six Infants. N. Leone Bloise.—p. 1017.
General Review of Vaccine Therapy. E. Claveaux.—p. 1032.
Evolution of a Gallstone Pericholecystitis. E. J. Tarigo.—p. 1049.
Rupture of Mesentery from Contusion. J. C. del Campo.—p. 1055.
Cancer of the Tongue. D. Prat.—p. 1058.

The Bundle of His.—Rossello and Rodríguez give ten plates (one colored) of the findings after the sheath of the bundle of His had been injected with blue India ink or with an opaque suspension of lead acetate or potassium bromid (saturated solution with a trace of India ink). With this technic they noted the relations between the wall of the aorta and the bifurcation of the bundle; the aorta is exceptionally large and tough at this point—in cattle there is a bone here. This explains the frequent injury of the bundle of His in case of changes in the aorta.

Pyelitis in Infants.—Leone Bloise reiterates that pyelitis in infants does not manifest its presence in any way to attract attention to the kidney. The clinician has to think of the possibility of pyelitis with nothing to suggest it except the routine practice of examining the urine in every protracted, rebellious, vague febrile state.

A. M. M. (Asociación Médica Mexicana), Mexico

1: 471-552, 1923

*Gastric Syphilis. S. Guerrero.—p. 473.
Importance of Bacteriologic Examination. L. Vignon G.—p. 479.
Operative Treatment of Hydrocephalus. W. Sharpe.—p. 483.
Pressure in the Cerebrospinal Fluid. J. C. Ramírez.—p. 491.

Gastric Syphilis.—Guerrero warns to suspect syphilis in all cases of stomach disturbances with more or less pains, vomiting, low acidity and pyloric obstruction, in persons suspected of inherited or acquired syphilis. Medical treatment should be pushed vigorously, but it cannot be counted on to cure except in the early phases of gastric syphilis. When there is obstruction at the pylorus, showing that the disease has a solid footing, medical treatment is inadequate. In a case he reports, the debility was so extreme in the man, aged 45, that he did not venture more than a gastro-enterostomy. Under other conditions he advises ample resection of the stomach, including the pylorus, with adjuvant arsphenamin.

Brazil-Medico, Rio de Janeiro

2: 365-374 (Dec. 22) 1923

Surgical Treatment of Pulmonary Tuberculosis. J. G. Sant'Anna.—p. 365. Conc'n, p. 376.
*Active, Inactive and Latent Tuberculosis. L. Stockler.—p. 366.
Sanitary Relations Between Man and the Sun. A. Ricardo.—p. 368.

Active, Inactive and Latent Tuberculosis.—Stockler quotes authorities to show that great confusion exists among them as to the definition of latent tuberculosis. He urges the congresses on tuberculosis to establish a standard for comparison with the individual case. In examining a patient, we must be careful to exclude or estimate properly sources of error, especially chronic affections of another nature, obstruction of the upper air passages, intercostal neuralgia, and the like.

2: 375-386 (Dec. 29) 1923

*Aortic Insufficiency. J. Barbosa.—p. 375.
*Transmission of Leprosy by Mosquitoes. E. Gomes.—p. 379.
Insulin in Treatment of Diabetes. G. Pereira da Silva.—p. 381.

Aortic Insufficiency.—Barbosa protests against calling the arterial, annular type of insufficiency "functional," as the disturbance is as much organic—although the valve itself is intact—as with the Vieussens' type of insufficiency in which the valve is incompetent. Both types once installed are permanent.

The Mosquito in the Transmission of Leprosy.—Gomes has frequently found the bacillus of leprosy in mosquitoes in the leper asylum at Rio. He has also witnessed leprosy develop in persons who have never had contact with lepers, but one or more lepers lived in the neighborhood, suggesting transmission of the bacilli by a blood-sucking, man-biting insect host. He incriminates the mosquito alone.

Medicina Ibera, Madrid

18: 1-24 (Jan. 3) 1924

*Amaurotic Family Idiocy. Duarte Salcedo.—p. 1.

Amaurotic Family Idiocy.—Duarte Salcedo gives an illustrated description of four cases of Tay-Sachs' disease. He says that it is comparatively frequent in Spain in communities where there is much intermarrying of a few families. The parents in two of his four cases were closely related; none were Jews. Inherited syphilis is another frequent factor. The primary cause, he says, is defective development of the brain. The ocular manifestations are secondary and are variable and not pathognomonic.

Prensa Médica Argentina, Buenos Aires

10: 553-576 (Jan. 10) 1924

*Measurement of Viscosity of Blood. F. L. Soler and V. Tedeschi.—p. 553.
Microscopy of the Living Eye. Esteban Adrogué.—p. 560.

Measurement of the Viscosity of the Blood.—Soler and Tedeschi give tracings obtained with their automatic register of the viscosity of blood during coagulation and otherwise. They call it the visco-coaguligraph. A metal cylinder is suspended in a glass tube with only capillary space left for fluid in the tube.

Revista de la Asoc. Méd. Argentina, Buenos Aires

36: 591-782 (Oct.) 1923

Complete Suprarenalectomy. J. T. Lewis.—p. 591.
Influence of Renal Nerves on Threshold for Glucose. O. M. Pico.—p. 594.
*Action of Insulin. M. A. Magenta and A. Biasotti.—p. 600.
Action of Insulin on Suprarenalectomized Rats. J. T. Lewis.—p. 611.
Experimental Hyperglycemia: Nervous Mechanism of the Action of Morphin. B. A. Houssay and J. T. Lewis.—p. 616.
Modes of Infection with Experimental Anthrax. A. Bachmann, P. Beltrami and A. Romat.—p. 631.
Congenital Malformations of the Neck. J. Llambias.—p. 634.
Resisting Power of Blood Corpuscles (Obstetric) in Mother and Child. F. A. Deluca.—p. 638.
Procain Checks Tonic Contraction of Striped Muscle. S. M. Neuschlosz.—p. 641.
Duodenal Ulcer. P. Alessandrini.—p. 649.
*Radiotherapy for Lymphogranulomatosis. Arrillaga and Merlo.—p. 660.
*Tests for Latent Hyperthyroidism. P. Escudero.—p. 669.

*Emetin Polyneuritis. C. Bonorino Udaondo and J. E. Carulla.—p. 673.
Morphology of Tubercle Bacilli in Relation to Forms of Pulmonary Tuberculosis. C. Fonso Gandolfo.—p. 681.
Multiple Metastasis in Skin and Viscera of Mammary Carcinoma. C. Dominguez et al.—p. 683.
*Amaurosis from Pneumothorax. R. A. Izzo.—p. 696.
*Nature of Banti's Disease. P. Escudero.—p. 700.
*Acute Optic Neuritis from Sinusitis. E. Demaria.—p. 707.
The Nipiology Society. M. Acuña.—p. 729.
Need for Infant Asylum. F. Schweizer.—p. 736.
Visiting Nurses in Welfare Work for Infants. D. Aguilar.—p. 744.
Discussion of Article on p. 736.—p. 750.
*Polycystic Degeneration of Kidneys. R. Rossi and L. F. Cieza Rodriguez.—p. 767.
*Generalized Diphtheria Paralysis. G. B. Cavazzutti.—p. 774.

Effect of Various Drugs on Action of Insulin.—Magenta and Biasotti found that the action of insulin in dogs may be strong enough to prevent the otherwise inevitable rise in the sugar content of the blood after administration of certain substances known to possess this action. The action of insulin, on the other hand, can be arrested by pituitary extract, strychnin, morphin and epinephrin, and in lesser degree by quinin and atropin. No inhibiting effect on the action of insulin could be noted with pilocarpin, caffein, eserin, nicotin, thyroid extract or cocain.

Roentgenotherapy in Lymphogranulomatosis.—Arrillaga and Merlo were impressed with the rapid subsidence under deep radiotherapy of large granulomas in neck and trunk. The two young men were thus relieved of suffocation. In both, the symptoms had been transiently aggravated at first by the toxic action of the deep roentgenotherapy, but the course of the disease was materially retarded. One survived for ten months.

Diagnosis of Latent Hyperthyroidism.—Escudero reports a case of chronic gastric disturbance and general nervous symptoms in which he suspected latent hyperthyroidism with paradoxic vegetative reaction. The basal metabolism was normal, and other tests for excessive thyroid functioning were negative. Then he gave the patient 0.10 gm. of desiccated and pulverized thyroid tissue twice a day for five days. This elicited an intensely positive reaction, with extreme protracted tachycardia and exaggeration of the subjective symptoms. After removal of four fifths of the thyroid, the disturbances subsided, and by the fifth month the clinical cure was complete after a five years' course. The thyroid showed a tendency to goiter and thyroiditis. The thyroid extract test in this case gave the only clue to the nature of the disturbances.

Emetin Polyneuritis.—In the two cases described, the polyneuritis developed at the second or third series of injections of emetin in treatment of amebic dysentery. The interval between the series had been six months in the first case and over a year in the other, but the writers ascribe the polyneuritis to cumulative action from the drug notwithstanding this long interval. In both cases, Ambard's coefficient had shown defective functioning of the kidneys, so that the elimination of the drug could not proceed properly. The doses had not been large, and the patient had displayed no previous evidence of intolerance.

Amaurosis from Pneumothorax.—Izzo states that artificial pneumothorax is applied at the Hospital Tornu with a preliminary injection of morphin or other sedative to ward off reflex action and of procain to prevent pain, which likewise might induce reflexes. There had never been a mishap in the 5,000 insufflations until the case described here, in which this technic had not been followed. It was the fourteenth insufflation and no morphin had been given as the tolerance seemed complete. As the needle was withdrawn after injecting 700 c.c. of gas, the young woman said she could not see at all. The pupils did not react to light, and there were intense lacrimation and headache, the pulse 90. Assuming that the amaurosis was of reflex origin, 0.01 gm. of morphin was injected, and vision returned completely in twenty minutes, and by the evening there was no further headache or vomiting. This patient has been given other insufflations since, after a preliminary injection of morphin, and there have been no further by-effects. The old assumption that gas embolism is responsible for mishaps with artificial pneumothorax is being abandoned in favor of the reflex theory.

Nature of Banti's Disease.—Escudero declares that Banti's disease is the casual association of three diseases: simple chronic splenitis; venous cirrhosis of the liver, and anemia with tendency to regeneration. They are all connected by one single etiology, namely, inherited syphilis.

Acute Axial Optic Neuritis.—In Demaria's case the retrobulbar neuritis developed the twelfth day after symptoms of febrile influenza had been noted, with pains in the orbit, eye and brow and progressive impairment of vision. The spinal fluid seemed to be normal, and roentgenography failed to show pus in the sinuses. Notwithstanding these negative findings, the middle turbinate was removed. The ethmoidal cells showed signs of hyperplastic degeneration and pus was found in one sphenoidal sinus. Vision rapidly returned after the sinuses had been cleared out, and in a month was within normal range. He gives seven charts of the visual fields in this case to show the characteristic scotoma and its changes.

Polycystic Degeneration of the Kidneys.—The man aged 32 had succumbed to uremia. He presented numerous stigmas of inherited syphilis.

Diphtheric Paralysis.—The case described is the second instance of generalized diphtheric paralysis in Cavazzutti's experience, and in both cases the pseudomembranes had formed on the skin, after a burn or operation.

Semana Médica, Buenos Aires

1: 1-56 (Jan. 3) 1924

*Intermittent Gastroptosis. T. Martini.—p. 2.
*Infant Mortality in Argentina. M. Acuña.—p. 6.
*Infant Mortality in Buenos Aires. F. Schweizer.—p. 11.
*Infant Mortality in La Plata. C. S. Cometto.—p. 16.
*Ways and Means to Combat Infant Mortality. Committee Report.—p. 26.
Laryngectomy and Phonation Thereafter. J. Leyro Diaz.—p. 27.
Case of Hysteric Astasia-Abasia. J. C. Vivaldo.—p. 30.

Intermittent Gastroptosis.—Martini describes here the symptoms and treatment of what he calls orthodigestive dolichogastria. The stomach sags and stretches with otherwise normal digestion. There is no actual pain with this intermittent form, but the sensations of oppression and weight, the drowsiness, dyspnea and eructations from the muscular atony may be accompanied by secretory disturbances and lack of appetite. The prognosis grows graver with every day that treatment is postponed, as the intermittent gastroptosis soon becomes chronic. Treatment must combat the various factors involved, the asthenia, inherited taints, etc.; mechanical supports are useful, and measures to strengthen the abdominal and gastric walls, fatten the patient and give tone to the nervous system. He advises also fractioning the meals, reclining afterward with the pelvis raised, and refraining from fluids at meals. Psychotherapy must not be forgotten.

Infant Mortality in Argentina.—These articles present the subject from different standpoints. The statistics given show that the general mortality in Argentina in 1919, for example, was 18 per thousand inhabitants, and the infant mortality averaged a third of the general mortality. In all the provinces, however, the infant mortality has shown a great decline in the last ten years. The three writers form a committee appointed to study ways and means to reduce it still further and save the 45,000 children now dying every year in Argentina. They urge the teaching of infant hygiene to the mothers and the future mothers, but say that is not enough; means must be provided to make it possible for the mothers to nurse their infants. The mother should be paid for nursing her child, when her circumstances render this necessary. Prenatal and postnatal protection of the child requires that the mother must be taken care of by the community. Puericulture must be taught in the schools, and the whole system should be centralized and partly supported by state funds.

1: 57-100 (Jan. 10) 1924

Infant Morbidity in the Heated Term. F. Schweizer.—p. 57.
*Sclerosis of Pulmonary Artery. F. C. Arrillaga.—p. 60.
Welfare Work for Weakly Children. J. P. Garrahan.—p. 62.
*Ptosis and Partial Torsion of Cecum. R. Araya.—p. 66.
*Acute Hemorrhagic Pancreatitis. Garcia Faure and J. M. Allende.—p. 69.
Functional Aortic Insufficiency. R. Rossi.—p. 74.

Sclerosis of the Pulmonary Artery.—Arrillaga has encountered five more cases since his last publication on this subject, all with necropsy. The findings corresponded to those of the "black cardiacs" previously published, only he declares now that there is every probability that the lesions in the artery are primary; they may or may not be accompanied by lesions in bronchi and lungs. The discovery of spirochetes in the walls of the artery has confirmed his assumption of the syphilitic nature of the process. He summarizes the articles that have appeared on the subject since his work in 1912. Parkes Weber describes the syndrome under the name of "secondary polycythemia rubra," but does not accept Arrillaga's view as to the syphilitic etiology. In Crouzon's case, the lesion seemed to be secondary to enlarged glands compressing the vicinity.

Ptosis and Torsion of the Cecum.—Araya warns to think of ptosis and partial torsion of the cecum when a patient complains of disturbances in the right iliac fossa and deep pelvis, especially when there is a history of pains and meteorism in this region followed by sudden cessation of the symptoms and diarrhea for two or three days. The tendency is to ascribe the disturbances to the genital organs, but the sagging cecum can be differentiated by palpation of the right lateral culdesac in the vagina. This reveals a fold, with semicircular outline, the convexity facing forward. This fold can be palpated as it crosses from the cervix to the vaginal wall, the end at the outer margin of this right culdesac. The consistency is that of any fold in the bowel, as the fold is merely the fundus of the cecum which has sagged down into this field. By distending the cecum, the fold disappears and a round tumor can be felt instead; as the cecum is emptied, the fold reappears.

Acute Hemorrhagic Pancreatitis.—Faure and Allende emphasize the value of intraspinal anesthesia in the operation for acute hemorrhagic pancreatitis as exemplified in the obese woman whose case is reported. The cholecystectomy was deferred until she had recuperated. The history of gallstone colics, the sudden onset of pain in the epigastrium and left hypochondrium, with symptoms of peritonitis in this region, compelled the laparotomy fifty-eight hours after the first symptoms.

Deutsche medizinische Wochenschrift, Berlin

50: 67-98 (Jan. 18) 1924

Hormones of Corpus Luteum and Placenta. H. Wintz.—p. 67.
*Vasomotor Disturbances in Pregnancy. Nevermann and Framm.—p. 69.
*Chronic Streptococcus Infections. P. Jungmann.—p. 71.
*Stimulation Treatment with Glycerin. J. Magat.—p. 75.
Photochemical Serum Reaction. Lange and Heuer.—p. 75. Begun, p. 35.
Anesthetizing of the First Rib. S. Ostrowski.—p. 77.
Treatment of Lupus Erythematodes. H. Martenstein.—p. 79.
D'Espine's Phenomenon. Koopmann.—p. 80.
Determination of Albumin in Urine. S. Aufrecht.—p. 81.
Diseases of Stomach and Intestines. II. H. Citron.—p. 82.
Present Status of Treatment of Surgical Tuberculosis. T. Voeckler.—p. 84. Begun, p. 50.
International Society Against Venereal Peril. Prinzing.—p. 86.
Impending Closure of Venereal Dispensaries. Häffner.—p. 86.
R. Koch's Diary.—p. 88. Cont'n.

Vasomotor Disturbances in Pregnancy. — Nevermann injected various substances intracutaneously and observed a parallelism between the local urticarial reaction and the leukopenia. There were no differences between normal pregnant and nonpregnant women. Eclampsia increased the speed of the reaction. The nature of the substance injected seemed to be immaterial.

Chronic Streptococcus Infections.—Jungmann points to the frequency with which streptococci are found in the blood in various diseases (tuberculosis, cancer, leukemia). The whole clinical and anatomic condition has to be taken into consideration before deciding the etiology on the basis of mere blood cultures. The problem of chronic infectious endocarditis (endocarditis lenta) is not fully solved. The streptococcus viridans may disappear, and yet the patient dies. Endocarditis lenta never has been known to follow a typical rheumatic endocarditis. The aortic valves are its predilection point, while the mitral valve is usually affected after rheumatism. The streptococcus etiology of rheumatism is not established. The endothelium plays the most important rôle in the fight against the streptococci. Therefore, the glomeruli are always affected. He believes that the difference between a focal and a diffuse nephritis is only quantitative.

Stimulation Treatment with Glycerin.—Magat recommends in scrofulosis, tuberculosis and anemia, 30-50 gm. of glycerin daily, by mouth. This treatment had been used with fair results by Vetlesen in pernicious anemia.

Medizinische Klinik, Berlin

20: 71-102 (Jan. 20) 1924

*The Kielland Forceps. M. Henkel.—p. 71.
Diagnosis and Treatment of Gonorrhea. Stümpke.—p. 73. Begun p. 37.
Retraction of Eyelid as Focal Symptom. A. Elschnig.—p. 75.
*Resistance of Erythrocytes. H. Simmel and E. Simmel-Rapp.—p. 76.
*Criminality in Children. J. K. Friedjung.—p. 78.
Gaucher's Disease. I. Zadek.—p. 78.
"Vital Processes in Cancer After Irradiation." G. Schwarz.—p. 80. Reply. E. Opitz.—p. 81.
*Gangrene of Finger from Cervical Rib. K. Otto.—p. 82.
Relative Aortic Insufficiency. F. Schlesinger.—p. 84.
Death After Strophanthin Injection. E. Lehmann.—p. 84.
Ethylene Chlorid Anesthesia. D. M. Rossisyky.—p. 84.
The Fight Against Favus in Eastern Europe. Zollschan.—p. 100.

The Kielland Forceps.—Henkel admits its advantages over the axis-traction forceps. Nevertheless, he says, it is not suitable as a universal instrument for practitioners. It requires such knowledge of the mechanism of labor and of the narrow pelvis that its advantages would be offset by the possibilities of wrong use in general practice.

Resistance of Erythrocytes.—Simmel and Simmel-Rapp determined the osmotic resistance of the erythrocytes from fifty-two children. It was very high in the new-born. It increases sometimes still more in the first week, regardless of the presence or absence of jaundice. Then the resistance decreases until it reaches in the fourth week the normal figures for older children.

Criminality in Children.—Friedjung regards the typical amnesia of adults for their own criminal tendencies in childhood as the real source of the difficulty in understanding the violent actions of children. Jealousy of the younger babies is a very frequent cause.

Gangrene of Finger from Cervical Rib.—Otto reports the history of a patient with extraordinary development of the seventh cervical vertebra in rib shape. The woman suffered from neuralgias. She died from pneumonia after acute thrombosis of the right brachial artery followed by gangrene of the fingers.

20: 103-134 (Jan. 27) 1924

Rabies and Its Treatment. H. Hetsch.—p. 103.
Multiple Bone Tumors. H. Assmann.—p. 108.
*Increased Frequency of Goiter. C. Lämel.—p. 112.
*Glucose Solution for Arsphenamin Injections. H. Weitgasser.—p. 113.
Causes of Nervous Symptoms. M. Serog.—p. 115.
*Experiments with Typhus Lice. F. Breinl.—p. 118.
Present Status of Cancer and Its Treatment. O. Strauss.—p. 122. Begun p. 87.
Physicians and Social Insurance. Wreschner.—p. 132.

Increased Frequency of Goiter.—Lämel has observed a rapid increase in the prevalence of goiter, since 1921, among schoolchildren in his town (Berndorf). He found goiter before this period in about 4 per cent. of the children; in 1922, almost in 20 per cent. of the girls, and in 1923 in 46 per cent. Goiter is rare in the first grade (age 6).

Glucose Solution for Arsphenamin Injections.—Weitgasser uses in weak and arsphenamin intolerant patients 20 c.c. of a 50 per cent. glucose solution to dissolve the arsphenamin. Intramuscular injections are too painful.

Experiments with Typhus Lice.—Breinl observed two types of the disease in guinea-pigs infected with brains from passage animals and those that had been infected with emulsions of lice bowels containing rickettsia. He ascribes these differences to the presence of dead germs in the bowel. They contribute to immunity while the living germs are infecting the animal.

Münchener medizinische Wochenschrift, Munich

71: 1-32 (Jan. 4) 1924

*Physical Pathology of Inflammation. H. Schade.—p. 1.
Differential Diagnosis of Joint Disease. Umber.—p. 4.
Epidemic Encephalitis. F. O. Hess.—p. 6.

*Encephalitis in Syphilitic Rabbits. F. Plaut and P. Mulzer.—p. 9.
*Sugar in Erythrocytes Under Insulin. E. Wiechmann.—p. 9.
*Inunction Treatment with Insulin. A. Wallgren.—p. 10.
*Pathology of Twins. H. W. Siemens.—p. 11.
Iron Reaction in Brain in Paralysis. C. Peter.—p. 12.
Plaster Substitute for Heel Nail Extension. F. Magenau.—p. 13.
Obstetric and Gynecologic Technic. M. Samuel.—p. 14.
*Reinfection in Diphtheria. F. Reiche.—p. 14.
Syphilis of Central Nervous System. H. Curschmann.—p. 16.

Physical Pathology of Inflammation.—Schade deals with the physical chemistry of inflammation. The concentration of dissolved substances increases so that the osmotic pressure may reach eleven atmospheres. The number of hydrogen ions may increase fifty times. These changes are sufficient to explain the clinical and histologic signs of inflammation. He also believes that rational treatment can be explained on the same basis.

Encephalitis in Syphilitic Rabbits.—Plaut and Mulzer failed to find histologically spirochetes in the brain tissue of rabbits inoculated with a "neurotropic" strain of spirochetes. Nevertheless, rabbits inoculated in the testes from a brain of this kind developed syphilis.

Sugar in Erythrocytes Under Insulin.—Wiechmann observed in three cases of severe diabetes an even distribution of glucose between plasma and erythrocytes after injection of insulin. No changes were observed when insulin and glucose were added to blood in a test tube.

Inunction Treatment with Insulin.—Wallgren reports a distinct action of insulin when rubbed in wool-fat ointment on the skin of small children. The dosage is very uncertain. It requires about ten times more insulin than the subcutaneous injection. His experience in this line was described in these columns, February 16, p. 590.

Pathology of Twins.—Siemens discusses the value of examination of enzygotic twins for research on heredity. It has disproved the theory of heredity of left-handedness. Freckles have a complicated heredity. Endemic goiter—in spite of the essential exogenous causes—is conditioned by a hereditary predisposition, since it affects, practically always, if present at all, both univitelline twins, but only in about 35 per cent. both dichorial twins. A drawback of the method lies in the possibility of paratypical differences due to conditions regulating the manifestation of the genotype. It is also to be noted that the identity of the hereditary substance in such twins is merely a theory, not an established fact.

Reinfection in Diphtheria.—Reiche has observed personally forty-two instances of reinfection with diphtheria. One of the patients applied three times within four years.

Wiener klinische Wochenschrift, Vienna

37: 79-104 (Jan. 24) 1924

*Results in Gastric Cancer. L. Schönbauer and V. Orator.—p. 79.
*Stammering. E. Fröschels.—p. 82.
*Hypertension and Increased Metabolism. J. Mannaberg.—p. 84.
Biology of Irradiation. II. G. Schwarz.—p. 85.
Malaria Treatment of General Paralysis. E. Herzig.—p. 88.
Infant Mortality After War. S. Peller.—p. 91. Cont'n.
Expert Testimony. Haberda.—p. 93.

Gastric Cancer.—Schönbauer and Orator report an increase in the mortality of cancer of the stomach from 2.28 per cent. in 1918 to 3.06 per cent. in 1923, among about 10,000 annual necropsies in Vienna. They investigated the outcome in 432 patients with gastric cancer treated in the last eight years. The stomach was resected in 151 of the 387 operative cases. They mention three cases in which examination and exploratory laparotomy revealed practically all the signs of an inoperable cancer with apparent metastasis. Yet the patients have survived. They investigated the fate of eighty-five patients after resection, and reexamined the 23 surviving. Cancers of the lesser curvature have the least unfavorable prognosis—probably because the nerves are early involved and cause discomfort, which brings the patient to the physician.

Stammering.—Fröschels points out that the results of the usual treatment of stammering by exercising single sounds are due to the suggestion that words are built up from single sounds. His method consists in the opposite. He demonstrates to the patient the similarity of all sounds. The basis of the whole condition is only logophobia.

Hypertension and Increased Metabolism.—Mannaberg determined the basal metabolism in twenty patients with essential hypertension (from 180 mm. of mercury upward); in eight with hypertension in chronic nephritis, and in two with syphilitic aortitis. The basal metabolism was always increased in essential hypertension (from 13.3 per cent. to 54.9 per cent.). It was also increased in some of the nephritics, but not in syphilitic aortitis. The daughter of one patient with hypertension had an increased basal metabolism in spite of her normal blood pressure.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

86: 459-700 (Dec. 22) 1923

Behavior of Tube During Pregnancy. H. R. Schmidt.—p. 459.
Mechanism of High Straight Engaging of Fetal Head. W. Haupt.—p. 482.
*Backward Displacement of the Uterus. M. Hofmeier.—p. 509.
Twisting Off of Ovarian Tumors. E. Vogt.—p. 513.
*Operative Treatment of Sterility. E. v. Graff and J. Petzold.—p. 520.
Evaluation of Operations for Correction of Uterine Displacement. R. Zimmermann.—p. 536.
Suprapubic Cesarean Section. P. Brandt.—p. 564.
*Deliveries Inspected Through Window. F. Ludwig and E. Lenz.—p. 589.
Transperitoneal Cesarean Section. H. Krause.—p. 598.
Structure of Fetal Membranes and Their Rupture. W. Niderehe.—p. 612.
Ruptüre of Umbilical Cord Vessels During Delivery. Gilfrich.—p. 619.
Ovarian Dermoid Cysts. W. Schmitt.—p. 629.
Injury of Skull During Delivery. H. Füth.—p. 633.
*Temporary Roentgen-Ray Sterilization. H. Naujoks.—p. 638.

Ventrifixation to Correct Retroflexion.—Hofmeier relates that this operation has been done at the Wurzburg clinic in 800 cases during the last thirty years. Recent reexamination of 264 of these patients from two to ten years after the operation showed that it had effectually corrected the displacement in 95 per cent. In 11 of the 145 pregnancies since there had been various complaints, but there was serious disturbance from the fixation only in one instance. The woman had to be delivered by cesarean section at her two pregnancies. Mother and child were soon dismissed in good condition at the second pregnancy, but the first child was stillborn. Delivery was normal in 110 of the 145; forceps was required in 8, version for transverse presentation in 9, and there were 2 premature births, 14 abortions and one extra-uterine pregnancy.

Operative Treatment of Sterility.—In 10 of the 242 cases the sterility was secondary; that is, the women had passed through one or more pregnancies before. There was dysmenorrhea in 63 per cent. of the 130 hypoplasia cases and in 47.3 per cent. of the 112 secondary cases. The outcome is known in 74 cases; of the 24 in which displacement had been corrected, 54 per cent. became pregnant thereafter, as also 30.7 per cent. of the 52 treated by curetting, dilatation or discission (18 hypoplasia and 46 normal cases). In 37 of the 51 dysmenorrhea cases, there was no further dysmenorrhea after the operative measures. In still another series of 56 cases, on insufflation of the tubes they were found obstructed in 31 and dubious in 4. The great value of insufflation is that it generally clears up at once the cause of the sterility, instead of groping in the dark.

Abdomen Window Births.—Ludwig and Lenz inserted a transparent celluloid window in the abdominal wall in the gap between the rectus muscles, drawn as far apart as possible, without resection. By this means they have been able to inspect the birth process in rabbits, and study the effect on it of various drugs, etc.

Temporary Sterilization with Roentgen Rays.—Naujoks has reexamined sixty-two women who had been given roentgen exposures to induce amenorrhea. In eighteen, typical menstruation returned after a few months. In the others the amenorrhea has persisted to date. The amenorrhea was of shorter duration the younger the women. Libido was not affected, and the symptoms of the premature menopause were slight and no more pronounced in the younger women. No injury of the offspring has been noted in any instance to date, but it is impossible to regulate the effect with precision so far.

Zeitschrift für klinische Medizin, Berlin

98: 1-304, 1924

*Diuresis. S. Litzner, E. Bernheim and C. R. Schlayer.—p. 1.
Function Test of Vegetative System. H. Hornig.—p. 21.

*Roentgen-Rays and Metabolism. H. Bernhardt.—p. 50.
*Running Races. H. Rautmann.—p. 58.
Blood Sugar and Nitrogen After Exertions. Cäsar and Schaal.—p. 96.
Aneurysm of Cerebral Arteries. J. Löwy.—p. 100.
Renal Diabetes and Proteins. W. Grunke.—p. 106.
*Lipase in Human Stomach. M. Takata.—p. 120.
Partial Bundle Branch Block. E. Kauf.—p. 126.
*Blood Sugar Reaction. R. Niemeyer.—p. 132.
*Partial Changes of Conduction in Heart. O. Roth.—p. 146.
Heart Chemistry in Diseases. G. Domagk.—p. 171.
*Feeding with Protein Cleavage Products. M. Levy.—p. 220.
Peripheral Arterial Heart. M. W. Janowsky.—p. 228.
Insulin Treatment. S. Isaac.—p. 263.
Comment on Gerhartz' "Origin of Heart Sounds." W. Weitz.—p. 303.

Diuresis.—Litzner, Bernheim and Schlayer divide diuretics into two groups. One of them produces a real physiologic diuresis, which eliminates not only water and sodium chlorid, but also urea and injected milk sugar. Ambard's coefficient decreases in those cases (drinking of water, purin derivates, salt injections). The other group (mercury salts) is considered as a toxic irritation, and the elimination of urea and milk sugar is decreased in spite of the increase in elimination of water and salt, as in some types of nephritis. Ambard's coefficient increases.

Roentgen Rays and Metabolism.—Bernhardt examined the urine in patients who had been irradiated. He believes that the increase in uric acid excretion (or in phosphates, which were parallel) is very useful for an early estimation of the degree of cell destruction by the treatment. A standard diet is essential.

Running Races.—Rautmann believes that running for speed develops an elastic heart, while prolonged running causes a hypertrophy. The heart should be smaller immediately after the exercise. A dilatation is a warning sign.

Lipase in Human Stomach.—Takata found the gastric lipase in the contents of human fasting stomachs. He differentiates it by its extreme sensitiveness against alkali from the pancreatic and intestinal lipolytic ferments. The latter are very frequently found in the stomach, especially after administration of atropin, which opens the pylorus.

Blood Sugar Reaction.—Niemeyer examined the blood at half hour intervals after ingestion of 100 gm. of glucose. He observed wide differences of the reaction in the same healthy or diabetic individual under apparently identical conditions. The results depend on the distribution and not on the utilization of the sugar in the organism.

Partial Disturbances of Conduction.—Roth finds a partial atrioventricular dissociation especially after acute rheumatic polyarthritis. He believes, however, that it may also occur as a pure neurosis. The pneumogastric nerve has a great influence, although a toxic injury of the bundle of His is necessary.

Feeding with Protein Cleavage Products.—Levy fed rats and mice with erepton, a product of strong hydrolysis of proteins. The animals died within nine days with signs of a hemorrhagic diathesis. Addition of proteins, fat or carbohydrates did not change the results, nor the microscopic alterations of the liver.

Zeitschrift für Urologie, Leipzig

17: 673-763, 1923

*Large Calculus in Kidney Pelvis. J. Vossbeck.—p. 673.
*Cinematographic Cystoscopy. J. J. Stutzin.—p. 675.
*Blocking of Lithotriptor. Z. Lenko.—p. 679.

Large Kidney Stone.—Notwithstanding that the calculus in the pelvis measured 9 by 6 cm., it had not been recognized at the first pyelography, probably because the presence of urine had diluted the contrast suspension until it was too weak to cast a shadow.

Cinemascopia.—Stutzin emphasizes that the moving picture apparatus records with far greater exactness than the human eye, and it allows study of the single phases of the movements, so that his cinematographic cystoscopy of the interior of the bladder may throw new light on physiology and diagnosis.

Blocking of Lithotriptor.—A scrap of the calculus had become impacted in the gear, and the half opened instrument could be neither opened nor closed until the impacted particle was removed through a suprapubic incision.

Zentralblatt für Chirurgie, Leipzig

51: 1-60 (Jän. 12) 1924

*Hemorrhage After Application of Esmarch Bandage. Bier.—p. 2.
Phases and Tendencies in the Treatment of Wounds During the Past Fifty Years. C. Brunner.—p. 8.
Roentgen-Ray Observations on Tuberculous Joints. F. König.—p. 15.
Changes in Tissues from Frostbite and Stasis. W. von Manteuffel.—p. 17.
Heterotransplantation. H. Küttner.—p. 19.
*Iodin Treatment of Surgical Tuberculosis. A. Gregory.—p. 22.
*Neo-Arsphenamin in Surgical Infections. E. Birt.—p. 24.
Removal of Pressure on Strangulated Deep Cerebral Vein to Combat Intracranial Pressure. E. Payr.—p. 28.
The Russian Method of Rhinoplasty. N. N. Petrow.—p. 36.
*Implantation of Glands in Postoperative Tetany. A. Krecke.—p. 39.
Radical Operation on Carcinoma of Esophagus. Clairmont.—p. 42.
*Extirpation of the Pericardium. V. Schmieden.—p. 46.
The Diagnosis of Intrathoracic Tumors. N. Guleke.—p. 50.
Access to Cardia and Lower Esophagus Through Stomach. W. Anschütz.—p. 56.

Hemorrhage and the Behavior of the Blood Vessels After the Application of an Esmarch Bandage.—Bier cites cases to prove that—in spite of the commonly accepted view that, after an Esmarch bandage is removed, a wound bleeds much more profusely than if artificial anemia had not been induced—on the contrary, bleeding is not increased by an Esmarch bandage but rather lessened. He explains how the erroneous conception developed: Surgeons cannot get away from the idea that artificial anemia causes a paralysis and thus a marked passive dilatation of the blood vessels, but that is the case only when the bandage is left on for hours. The vessels are not paralyzed but, on the contrary, are much stimulated by the application of an Esmarch bandage for a reasonable period.

General Iodin Treatment of Surgical Tuberculosis.—Gregory discusses the value of the Hotz iodin method of treating surgical tuberculosis (1912). At the fifteenth congress of Russian surgeons, 1922, Grekow reported exceptionally good experience with the method. His blood examinations agreed with those reported by Hotz. He injected the iodin-iodoform into the buttocks or ischiorectal fossa (the latter being less painful). Over a period of nine years, a thousand hospital patients and several thousand ambulatory patients with surgical tuberculosis were thus treated, and 70 per cent. were cured; 20 per cent. were much improved, and 10 per cent. received little or no benefit. In connection with the failures it was noted that there was usually no increase of the lymphocytes in the blood following the injection. Ten injections (one each week) were usually required. Gregory has himself employed the method in 101 cases at Wologda, 45 patients being still under treatment; of the remaining 56, 25 may be regarded as cured; 25 are much improved, and 6 have received little or no benefit. Treatment has extended over from four to six months. Fifteen injections (one every seven to ten days) were usually required to show results: He injects from 5 to 6 c.c. into the gluteal region. The formula is 90 parts of 10 per cent. iodoform glycerin and 10 parts of 10 per cent. tincture of iodin. The injection is intramuscular; the dose from 3 to 10 c.c.

Neo-Arsphenamin in Surgical Infections.—Birt states that, following the reports from Zurich in regard to good results from injection of neo-arsphenamin in impalements and similar serious injuries, he began to use such injections in all severe injuries that show a tendency to develop sepsis. He gives eleven case reports, in all of which the injections of neo-arsphenamin checked attacks of fever and hastened the cleansing of the wounds. For example, a strong Chinese laborer, aged 25, had received five severe stab wounds in a fight, and the wounds were in a very dirty condition. The evening of the second day, his temperature was 39.6 C. After an injection of 0.2 gm. of neo-arsphenamin, the fever abated and at the end of four days had disappeared entirely, so that the patient could be dismissed in two and a half weeks with the wounds almost completely healed. In some cases, a second and a heavier injection (0.3 or 0.4 gm.) was necessary to check the fever and secure the desired results.

Implantation of Parathyroid Glands from a Horse in Treatment of Postoperative Tetany.—Krecke, finding it difficult to procure human parathyroid glands, has implanted in five patients, suffering from postoperative tetany, parathyroid glands from a horse. The results were eminently satisfactory

in three cases; in one case there was at least slight improvement, and in one case (of six years' standing), no relief was afforded.

Pericardiectomy in Adhesive Pericarditis with Much Shriveling.—Schmieden removed the pericardium in treatment of the shriveling type of tough adhesions in three cases, and considers it an exceedingly efficacious procedure. In the first two cases the patients recovered their health and strength, so that two years later they are still able to do a full day's work. The third case, although technically successful, ended in the death of the patient owing to advanced degeneration of the myocardium. He combines Brauer's cardiolysis with the decortication of the heart by removing as much as possible of both layers of the pericardium.

Zentralblatt für innere Medizin, Leipzig

45: 29-40 (Jan. 19) 1924

Psychoneurotic Retention of Urine. J. S. Galant.—p. 29.
*Introduction of the Gastrocystoscope. W. Sternberg.—p. 32.

Introduction of the Gastrocystoscope.—Sternberg publishes a few technical points to facilitate the introduction of his gastrocystoscope. Contrary to other authors, he uses the left corner of the mouth, which is drawn backwards. He also pushes the lower jaw to the side. This shortens the necessary length of the instrument considerably.

Casopis lekaruv ceskych, Prague

63: 65-96 (Jan. 19) 1924

Plastic Surgery of Joints. J. Bárta.—p. 65.
*Metabolism of Fats. F. Vanýsek and V. Kaufmann.—p. 77.
Chemical Reactions with Endocrine Extracts. J. Kolousek.—p. 82.

Metabolism of Fats.—Vanýsek and Kaufmann observed in a case of obesity normal values of the petroleum benzin extract of blood, but very high amounts of cholesterol. They are investigating this disturbance of the equilibrium of fats and lipoids in obesity. The frequent disturbances of diuresis may be due to it. Its changes in dilution or inspissation of the blood (for instance after injection of epinephrin in exophthalmic goiter) are more pronounced than the changes of the blood chlorids. They confirm Abelous' observations on the gradual increase of the cholesterol content of the serum kept in the icebox. Yet they do not consider the colorimetric method used as sufficient proof of formation of cholesterol in the serum.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 321-424 (Jan. 26) 1924

*Extra-Uterine Pregnancies. L. D. Eerland.—p. 326.
Experiences with Epidemic Encephalitis. J. Lankhout.—p. 340.
*Topical Bloodletting in Inflammations. A. van Balen.—p. 345.
Changes at the Umbilicus in Abdominal Disease. Willink.—p. 354.

Extra-Uterine Pregnancy.—Eerland states that in his 116 cases of extra-uterine pregnancy since 1915 it was the first pregnancy in 17.2 per cent. In 7.9 per cent. there had been a previous extra-uterine pregnancy, the interval from eight and a half months to eight years. In 6 cases there was a history of appendicitis, and in 5 in this group the ectopic pregnancy was in the right side. In 11 per cent. it was known that attempts had been made to induce abortion, and 4 in this group terminated fatally. In 12 per cent. of the 92 laparotomy cases, blood was still flowing from the ruptured tissues when the abdomen was opened. In 47 there was bleeding from the vagina. The diagnosis had been made correctly only in 30 cases, the presumptive diagnosis being perforation peritonitis in the majority. Shoulder pain was pronounced in 55 cases, either in the right or left shoulder or in both; it occurred in 78 per cent. of those requiring immediate intervention.

Local Bloodletting in Acute Inflammatory Processes.—Van Balen has found that the relief of pain from topical bloodletting can be depended on when there is much swelling and congestion, while lumbago and neurotic pains are not modified by it. The bloodletting arrests the local stasis, and local capillary stasis is one of the main elements in the acute inflammatory process. By arresting the local congestion, deep lying tissues and organs are favorably influenced. Venesection in cyanotic patients may change the color of the skin throughout, the normal tint returning in a few minutes. Local bloodletting in an inflamed part subdues the local purplish redness in the same way, the stagnating blood being got out of the way and freshly oxygenated blood taking its place and circulating regularly. He has been preaching for some time the necessity for reviving local bloodletting as a routine treatment for acute inflammatory processes, and the recent discoveries in regard to the physiology and pathology of the capillaries throw light on the mechanism of the benefit.

Ugeskrift for Læger, Copenhagen

86: 47-65 (Jan. 17) 1924

*Isolated Pupil Anomalies. T. E. H. Thaysen.—p. 47.
*Pepsin in Stomach Content. H. K. Rasmussen.—p. 60.

Isolated Pupil Anomalies as Guide for Treatment.—Thaysen emphasizes the importance of the age. In his 43 cases of isolated pupil anomalies and others reported by Dreyfus and Nonne, 28 of the 75 under 51 developed progressive neurosyphilis while this occurred only in 4 of the 40 over this age. When the isolated pupil anomaly accompanies a normal cerebrospinal fluid, the prognosis may be regarded as good when the age is 55 or more, regardless of whether the Wassermann reaction in the blood is positive or negative. In subjects younger than this, the probability is that the course will be progressive in some. In cases of isolated pupil anomalies with primarily abnormal cerebrospinal fluid, the majority will probably develop later tabes, general paralysis or neurosyphilis. At the same time, cases are known in which the isolated pupil anomaly has persisted unmodified. The prognosis seems to be independent of the behavior of the blood in respect to the Wassermann reaction. He cites experiences to confirm the assumption that the cerebrospinal fluid is found abnormal more frequently in the treated than in the untreated cases of syphilis, and that neurosyphilis develops at a younger age in the treated. Thus, he remarks, we know that treatment is necessary, but we find that the treatment may do harm. His conclusion is that we are justified in refraining from treatment of isolated pupil anomalies if the cerebrospinal fluid is normal and the subject is past the age at which late syphilitic nervous affections generally develop. He must be kept under observation, but the probabilities are that the affection of the central nervous system responsible for the pupil anomaly will not progress, while, on the other hand, there is a slight possibility that treatment might rouse it to greater intensity. When treatment is indicated, both patient and physician must realize the importance of making it thorough, but he warns that we must never forget that we are introducing into the patient's system substances that are liable to do harm, and hence we must not be too determined to get the spinal fluid normal at all costs. Aortitis is found with the isolated pupil anomalies in fully a third of the cases, regardless of the Wassermann reaction in the blood, and perhaps a little more frequently in the cases with normal spinal fluid. Even if there are no signs of aortitis, he thinks we are justified in assuming its presence in subjects under 55 with normal spinal fluid and isolated pupil anomaly. As a rule, treatment of aortitis comes too late, as it seldom causes symptoms before 40 or 45. He urges early search for anisocoria, sluggishness in the pupil reaction, uneven pupils, and other changes suggesting an impending actual pupil anomaly. It is important to note whether the contraction persists alike in both pupils under the influence of the same light, applied after darkness; one pupil alone may dilate after fifteen or twenty seconds of like contraction. The secondary reaction is also instructive, namely, the contraction which occurs in both eyes when the light is applied to one eye, and the secondary contraction in both when the light is then applied to the second eye. The absence of this secondary reaction is a sign that a true pupil anomaly will be observed later, and the spinal fluid should be examined at once. [This article was Thaysen's test lecture on a self-chosen subject in the competition for the chair of internal medicine at Copenhagen.]

Pepsin in the Stomach Content.—Rasmussen reports very favorable impressions of the simplicity and reliability of Ege's method of determining the pepsin content after an Ewald test meal. The technic was described in the *Ugeskrift for Læger*, Sept. 21, 1922, p. 1227, and mentioned in THE JOURNAL, Dec. 9, 1922, p. 2046. He lists the findings in ten cases. They cannot serve to differentiate cancer.